

# COMPUTERWORLD

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## Lines, Lines, Lines

## 35,000 Attend Fall Joint Computer Conference

By Edward J. Burke

CONTRIBUTOR

**LAS VEGAS.** The Fall Joint Computer Conference has come and gone, although some 35,000 (at best estimate) travelers may still be having nightmares about taxi planes, and phones.

The conference appeared most successful from the viewpoint of the "average" visitor. The booths seemed bigger, more colorful, and certainly better organized than before. Company representatives male and female were well-bred, and most exhibitors appeared happy with the general setup.

This is, until you start talking about getting a telephone. Getting to Las Vegas was often difficult, but finding an available taxi was a major effort. And finding a phone which would produce something other than a busy signal before you were finished dialing was

next to impossible.

Waiting in line was fashionable, but you could choose between phone lines, cafeteria lines, taxi lines, and, if you really wanted a line, you could get in a registration line. If you didn't know anyone, you could try cashing in some chips at any of the bars. There usually weren't many people waiting there.

Getting out of town was something else again. Airlines had to be booked well in advance, and had to make extra trips to Ciudad, City, Arizona, where the "spillover" systems were berthed in hotels, motels, and private homes. But most of the conference left technical. If they were, could be expected any time thousands of people would stay over a town of this size. Local papers quoted an official of the American Federation of Information Processing Societies (Afips) conference sponsor, as

expecting 15,000 to 30,000 to attend the semiannual computer gathering. Afips' initial estimates weren't available, but about twice the quoted figure seemed closer to the actual number.

The number of attendees was less than the 1968 figure in Boston, but this was no surprise since Las Vegas does not draw "walk-in" visitors from any metropolitan area. In this case, it was fortunate, because it left more room to walk, think, and occasionally sit.

### 170 New Exhibitors

The number of exhibitors set a new record, with about twice the number at the 1968 conference, according to Afips. Almost half of the exhibitors, 170, were said to be making their conference debut here, and there were almost as many new products.

An expected 10 percent of exhibitors announced the new product part of the show, along with data entry devices. A different approach also was prominent: hardware styling. From minicomputers to large mainframes, sleek paneling and new external designs prevailed even when there wasn't the slightest change inside.

A mild battle took place between the minicomputer and the time-sharing minis, as both competed for the attention and dollars of the small user.

Anting the unique ideas and original approaches to various problems was Control Data's booth, which avoided some cost cutting by maintaining a high level of quality of floor space by constructing a "two-story" exhibit.

The Las Vegas Convention Center itself proved inadequate, and the conference was held in the Sahara Hotel and Casino. About one-third of the exhibitors in about 20% of the floor space, were set up in the Sahara Hotel, with a free shuttle bus periodically transporting visitors to and from the two buildings without reducing the income stream. This arrangement was more successful than some had anticipated, and was but another indication of the rampant growth of the joint conferences.

IBM has charged that IBM has "wrongfully and deceptively developed, fostered, and maintained a separate among computer users" that computer software is an intangible without market or property value.<sup>1</sup> IBM has committed a frame on the Patent Office in applying for and maintaining patents, and that IBM has advised its attorneys and the Patent Office that software is not patentable subject matter.

IBM charged that its right to influence public officials Judge Neville set Jan. 12 for the next court hearing.

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Barker at the Worldwide Computer Services booth uses Las Vegas techniques to attract visitors.

## Consent Decrees Deleted By Antitrust Suit Judge

**SJ PAUL, Minn.** All references to the 1935 and 1956 consent decrees signed by IBM have been ordered stricken from the complaints of the four computer manufacturers involved in the antitrust suit against IBM.<sup>1</sup>

But Federal Judge Philip Neville, noting that this ruling may involve a "substantial ground for difference of opinion," opened the door to an immediate appeal by the plaintiffs.

Each of the complaints against IBM by Control Data Corp., Data Processing, Imacon and General Topic Applied Research Inc., and International Research Inc., mentioned one or both of the consent decrees. The four cases were consolidated in U.S. District Court here.<sup>2</sup> In granting IBM's motion, the

judge noted that the plaintiffs were not parties to the decrees and in fact didn't even exist at the time they were signed.

"It seems to the court that IBM's practices within the pertinent industry have not been illegal or have been inimical and/or violative of the Sherman Act or other laws, they should stand on their own feet and be capable of proof as such," the judge ruled.

"They are not independently unlawful and provable, then the fact that they are contrary to a consent decree entered some 13 years earlier cannot make them so," he said.

In the same 20-page ruling,

Judge Neville denied a motion by IBM to have certain other charges stricken from ADR's complaint.

He also has charged that IBM has "wrongfully and deceptively developed, fostered, and maintained a separate among computer users" that computer software is an intangible without market or property value.<sup>1</sup> IBM has committed a frame on the Patent Office in applying for and maintaining patents, and that IBM has advised its attorneys and the Patent Office that software is not patentable subject matter.

IBM charged that its right to influence public officials Judge Neville set Jan. 12 for the next court hearing.

## Terminals, Minicomputers Dominate FJCC Exhibits

By Peter L. Briggs  
CW Software Editor

**LAS VEGAS.** The leaders at this year's fall computer carnival were definitely terminals, minicomputers, and mass storage devices.

Technical paper presentations were somewhat improved over last year, but still poor.

At least 100 of the 368 exhibitors had demonstrated their terminals, terminals being available in several decorative colors, with wood-grained vinyl as the deluxe look.

Color (displays), speed (printers), and versatility (data terminals) were the prime claims this year.

Visitor demonstrated several of its units, and IBM showed off its new 2770 and 2790 communications stations.

### Data Speed Tape

AT&T demonstrated its new magnetic tape unit and cartridge that can be used with any Teletype to replace the paper tape station.

The unit operates through the

company's Dataprep service, at 2,400 words/min. Storage capacity for this cartridge is 150,000 characters.

No attempt, the company says, was made to make the cartridge system computer-compatible. Selectric, however, is available with its searching capabilities similar to those available with the IBM magnetic tape to Selectric-typewriter system.

### Minicomputers

Perhaps 20 new minicomputers were introduced this fall. Newer, smaller, more versatile, and cheaper than all their competitors and predecessors, according to their respective companies, these computers do seem to offer more useful abilities than ever before.

More I/O capability with much better software is creating strong interest in these machines, according to several presenters.

Perhaps for these machines around Printers, tape drives, disks, drums, and console entry devices that can be used, the companies say, with all new (Continued on Page 2)

### On the Inside

Vicarious Photo Tour Of the Fall Conference

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IBM Seen Competing For Services Market

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Unicon 680 laser mass memory attracts crowds to Precision Instrument Co. booth.

## Terminals, Minicomputers Dominate FJCC Exhibits

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minicomputers are being introduced by the dozen.

### New Bulk Memories

Precision Instruments demonstrated its long-awaited Unicon laser-memory system, the first in the industry capable of storing a trillion bits of usable data; the Unicon, even without its error correction circuitry, achieved an error rate of only 1 bit in 100 million, according to Dr. Konrad Schobel, company president. Unicon, delivered to the plant, to Phillips American Petroleum Corp. in San Francisco, is scheduled for the second quarter of next year.

In discussing plans for the unit with CW, Schobel said that the company's main interest is working on the software to interface the unit with ILLIAC IV, (the giant Burroughs system being developed by the University of Illinois).

Lockheed demonstrated its new memory system, an ex-

tended core memory for Univac and Ampex's new magnetic tape strip memory was displayed for the first time. The unit allows high-density data storage and retrieval through a company-developed technique.

### Technical Sessions

The technical sessions were very slightly improved from those given last spring. In spite of a Alps emphasis on the first two days of the FJCC in San Francisco last summer, the lack of competent speakers was obvious to everyone. Many speakers were unable to communicate any information to the majority of the listeners, boredom and annoyances among many of the 35,000 to 45,000 attendees.

The session schedule created somewhat less than the usual number of conflicts, with semi-technical and general interest sessions held concurrently with purely technical sessions.

than in the past.

The FJCC had its problems, however, the logistics improved; discussions were colorful and more interesting, and exhibits were better than ever.

Among the problems raised were security and the misuse of the "inevitable" national data bank, "computer technology which was said to be advancing faster than the people whom it serves, and discrimination against Negroes and women in the data processing industry. Some personal ideals also prevailed, such as pacifism ("A computer is at the heart of every military system"), but few solutions were offered.

The technical sessions were generally well-received. Fewer "poor" papers were presented

in the financial position now improving

performed until next year, amounts to \$337,000, as opposed to \$380,000 last June 30. Additional improvements have been achieved through budgeters spending at less than budgeted amounts. The economic situation has improved by about \$43,000 since last June.

Current bills are being met by available cash, partly through early payments on January renewals, said George Glaser, president of the council. The amount of early cash received would not interfere with payment of January bills out of January cash, while it did improve the immediate situation by about \$40,000.

The current total deficit, including amounts that have been paid for but are not due to be

## Education Committee Proposes Topics for Follow-Up DP Course

LAS VEGAS - Before an audience of about 60, the FJCC Education Committee presented a 17-point list of topics suggested for a follow-up course in computing.

The proposed course is a follow-up to the committee's 1978 recommendations for a survey course aimed at those who don't intend to become computer professionals.

The topics for the second course were designed for the college student who is committed to a discipline other than computing, who has taken an introductory course, and who wants to explore the field further.

The committee, chaired by Prof. Fred Gruberger, San Fernando Valley State College, listed the following for inclusion:

1. Survey of the book and periodical literature of the field, of the immediately preceding two years or so.

2. A term project. "If we subscribe to the notion that computing is learned by doing, it is then important that the student carry through at least one nontrivial computing task by himself, and document it. He should learn that there is a difference between program documentation and problem documentation."

3. The concept of cost-effectiveness should permeate the entire second course.

4. The material that should have been covered in the first course may not have been, but even if it was, it should now be reviewed. In addition, it should be explored in greater depth.

5. Survey of the types of computer languages, their status, uses, and limitations.

6. Recognition of what constitutes a good computer program, how to measure its size and complexity of a problem, the tools available to solve it.

7. Orientation toward other disciplines, for motivation and to broaden the range of applications.

8. Business data processing: file structures, file manipulation, and business problems.

9. Familiarity with proprietary and packaged programs, but

with due warning of the constraints and limitations imposed by the use of packaged programs.

10. Topics in nonnumerical information processing and artificial intelligence.

11. On-line computing; interactive computing; conversational computing; remote job entry; graphics.

12. Operating systems—not in great depth.

13. It is suggested that the second survey course be accompanied by a course given in the discipline of the student in his own department.

14. Hardware and software selection: the student should be taught what questions to ask in this process.

15. A survey of the societies active in the field.

16. What to do to the computer expert arrives "How to recognize a fire."

17. Above all, the stress is on fostering good computing, discouraging bad computing, and knowing how to tell one from the other.

The panelists, often representing a broad spectrum of opinion, fielded inquiries about the relative merits of hands-on experience, the absence of programming instruction in the course,

and the lack of emphasis on hardware.

The lack of a topic covering the future was raised by two members of the audience. In response, one panel member answered, "You want to teach them to predict the future and develop the future. I think it is presumptuous of any of us to talk about the future with computers. I rather object to having them in the course myself."

Discussion was somewhat hindered because the room was equipped to accommodate about 1,000 people and floor microphones were rarely used, so that the audience was sometimes unfamiliar with the question being answered.

In addition to Gruberger, the panel included Richard Andre, professor, University of Oklahoma; William Atchison, professor, University of Maryland; Charles Culver, Automation Institute, Long Beach, Calif.; Don Krebsel, Santa Monica Community College; Roger Mills, TRW Systems, Inc.; George Towne, president, Peter Seeger, University of Arizona; and Robert White, Informatics, Inc.

## Rigging Votomatic System

### Said 'Virtually Impossible'

LOS ANGELES - While it theoretically would be possible to rig the counting of election ballots using electronic means, security measures, testing procedures, and the complexity of the system make rigging "virtually impossible," an IBM expert told the Los Angeles County Elections Security Committee.

The committee, created to investigate charges that the system could be rigged, has heard other witnesses call for suspension of the system's use [CW, Nov. 19].

The IBM expert said that the system would have to be tampered with in one of two areas, during the card to tape phase or during the compilation run.

The compilation system is responsible for the tape phase, it is kept under lock and key in the office of the registrar of voters, Kangas said. It is tested for up to 30 days before the election, so any alteration would have to be made between the time of the test and election night, he said.

After the election, tally-tally is conducted election night, the system is used during the next 30 days to update file results, he said. Any rigging of the count also would be likely to be detected at this time, he stated.

Since the original punch card ballot was not kept, it could be audited at any time as a further check, he said.

"The ultimate guarantee of the integrity and security of the election, of course, rests in the integrity of the registrar of voters and his staff, and may have been violated during the conduct of the election," Kangas said.

He said that if he were asked to rig an election in Los Angeles County, "I would have to tell you it would be virtually impossible for me to do it."

## 35,000 Jam Fall Joint Conference, Creating Transportation Problems

(Continued from Page 1)

questions of less than general interest, and moderators were slow to stop any irrelevance. And the panel on computer-related ethics was more informative than define its title: it rehashed well-known problems, but had no solutions short of the terse "let's everybody get concerned."

Among the problems raised were security and the misuse of the "inevitable" national data bank, "computer technology which was said to be advancing faster than the people whom it serves, and discrimination against Negroes and women in the data processing industry. Some personal ideals also prevailed, such as pacifism ("A computer is at the heart of every military system"), but few solutions were offered.

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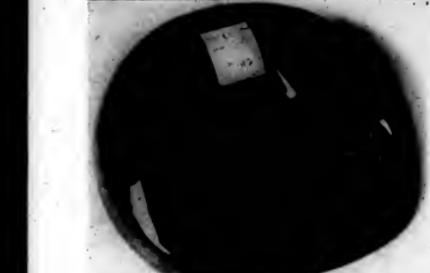
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Interplex In-House T/S Terminal

## Terminal Enters Basic 4 Commands From One Key

**LAS VEGAS** — A terminal specifically designed for use with Basic, and integrated with a new in-house time-sharing system was announced by Interplex Corp.

The terminal keyboard offers what appears to be the unique capability of entering Basic 4 commands from appropriate function keys. This eliminates much typing and makes it possible for the user to operate with only a strip printer, instead of the usual 80-character printer, the company says.

Functions such as LET, LIST, SIN, END, and GOTO are all directly entered by depressing one key. The center section of the keyboard contains the alpha-

betical characters.

Some interested users at FJCC commented that they found the whole idea of a specialized keyboard quite intriguing. The only limitation seemed to be the limited width for printouts.

Printing is formatted to fit a strip printer, with specialized format control keys to select the type of control display.

A full 16-terminal system with software, the company says, can be leased for about \$1,800 per month. Initial deliveries are scheduled for next spring.

Interplex is located at 400 Totten Pond Rd., Waltham, Mass.

## Infoton Announces New Terminal CRT Displays

**LAS VEGAS** — Priced about 50% lower than comparable terminal displays, the KDT series of CRT displays was introduced by Infoton.

The KDT-1 is available in four models ranging in price from \$1,495 to \$2,495. The four models of the KDT-2 are priced from \$1,995 to \$2,995.

The KDT-1 is designed as a substitute for teletypewriters. The KDT-2 is designed primarily as a data entry terminal, and has

a full range of editing capabilities. These include insertion and deletion of characters and lines, comment protection, and tab features.

These units interface to standard datapath sets of up to 2,400 baud. Higher speed serial or parallel data transfer rates of up to 8,600 baud are also available.

Both terminals include a blanking character capability and scroll mode operation.

# Exhibitors Forced Into Stop-Gap Measures to Keep Phone Service

By Ronald A. Frank

CW Communications Editor

**LAS VEGAS** — The demanding telephone requirements of computer users were vividly brought to light last week by exhibitors at the FJCC.

Despite the fact that AT&T made available 300 extra data modems and assigned 58 additional telephone lines to help handle the anticipated crush for voice grade circuits, the demand was just too much for local telephone facilities.

Exhibitors complained to Atpis about communications facilities during a meeting held to discuss their problems. The discussion revealed the stop-gap measures they employed during the show to insure them access to the switched network.

One exhibitor told CW that he could not take a chance on lines not being available when needed, so he made sure that we could set a line, we held our circuits open 24 hours a day for the duration of the show," he said. He added that although this cost his company more than \$600/day, it was infinitely more effective than trying to obtain a line when needed.

Another representative said that when his firm operated on-line with a remote site, "strange disconnections" occurred.

Asked about these problems, a spokesman for the Northern New England Bell Telephone Co. said that as far as his firm was aware, only a few minor complaints were recorded. He added that Central felt the conference gave data users less

problems with telephone facilities than those experienced at previous joint computer conferences in Boston and San Francisco.

"If any communications problems did exist," he said, "we would welcome hearing from those affected. As far as we know, our service was adequate for the demands placed on it."

The telephone spokesman characterized the FJCC as not an unusually large convention for Las Vegas, although he did admit that the line requirements of computer users were probably

heavier.

Exhibitors who relied on the dial-up availability of voice grade lines said that when they wanted to display their equipment in a communications mode, outgoing lines from the Convention Hall were often difficult to obtain.

"Potential customers would not wait until we managed to obtain a line," one exhibitor said. "In peak periods, the heavy usage of telephone lines at the Convention Center made it almost impossible for us to demonstrate our communications equipment."

## CDC, UCC System Handles Batch, On-Line Terminals

**LAS VEGAS** — Control Data Corp. and United Computing Systems Inc. have announced a jointly developed software operating system designed for a broad range of time-sharing applications.

The operating system, called Kronos by CDC and UCS VI by United Computing, features three: concurrent processing modes, interactive time-sharing, remote batch, and local batch.

In fully interactive on-line time-sharing applications, the system can accommodate up to 384 terminal lines, as well as local batch processing. For remote batch processing, the system can handle 256 lines and 16 CDC user terminals, the companies said.

User languages available with Kronos include Fortran, Basic, Text Editor, and Aplig for both interactive and batch processing. Cobol, Sort/Merge, Pert/Time, Apt, and Optima are available for batch processing exclusively, according to the developers.

The interactive time-sharing system, files can be accessed simultaneously by several users but individual users can still exercise complete control through password protection, the companies claim.

UCC is being marketed by United Computing across the nation for on-line availability in major cities to time-shared and batch processing users. The new service utilizes a CDC 6400 series computer system installed at the UCC data processing center in Kansas City.

## Other Equipment Shown



Sangamo's DS 7200 Data Pooler



Ampex Data Recorder and Cartridge



Cactus Disk Cartridge Drive



Telex Multiformat Tape Drive

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# Teletype Unveils New Line of Tape Terminals



Teletype Magnetic Tape Terminal

LAS VEGAS — A new family of magnetic tape terminals compatible with its existing equipment was unveiled here by the Bell System.

The device, according to Teletype Vice-President John Auwaerter, is high-speed, on-line, compatible with the lower-speed terminals, and the Datapoint services of AT&T. The unit operates at 2,400 words/min.

The Teletype Magnetic Tape Terminal offers storage capacity for each cartridge of 10,000 characters, or 30,000 words. Each 100 ft. cartridge can be searched for a particular file, in a manner similar to that used for the IBM Magnetic Tape to Selectric Typewriter system (MTST).

The system can be attached, the company says, to any Model 33, 35, 37, or Inktronic terminal station. Tape can be transmitted and received at tape speeds and later printed out off-line. Auwaerter says.

No attempt has been made, he explained, to make these cartridge units compatible with computer tapes. However, he pointed out, there are no limitations when transmitting to a remote computer, since the data is received and transmitted in standard ASCII format.

## Availability

Bell announced that the systems would become available during July, of next year. Rapid deliveries are to be expected at that time, the company says.

## Receive-Only Printer

This unit can be easily combined with the Inktronic Receive-Only (R/O) terminal, permitting direct printing at speeds of 1,200 words/min in complete silence.

The unit will operate at 750 words/min, and at 1,050 words/min with Type 2 terminals, the company says.

The unit uses the Series 200 or 400 data sets, for communication over regular telephone lines, according to Bell.



Loading Tape Terminal

## Raytheon Announces Mini-Unit And 360-Compatible CRT Display

LAS VEGAS — Raytheon announced a minicomputer, its first and a 360-compatible CRT display module.

The Raytheon 704 minicomputer, fully compatible with the 706 and 703 computers, has more than 300 programs and subroutines available, all said by Raytheon, to be proven in use.

The 704 includes, in its minimum configuration, a central processor with 16-bit words and 74 instructions, 4.096 words of core memory with 1.5 msec/

cycle time, byte manipulations, direct and indexed addressing, and a 16-bit memory. It includes one level of automatic priority interrupt (expandable to 16), and an operator console with a lookout key switch.

The price of the minimum configuration will be about \$10,000, the company said.

Options include memory expansion, 16,384 words, high speed direct memory access, memory parity, hardware multiply/divide, hardware bootstrap, interrupt expansion to four or 16 levels, real-time clock, ASR 35 or 35 Teletype, a multiplexer with 12-bit A-to-D converter with power supply and power fail-safe.

Standard peripherals such as Teletype, paper tape, card equipment, magnetic tape, disc memory, analog-to-digital and digital-to-analog converters, timers, and a wide variety of interface in the field, the company said.

The software library includes conversational and 360-compatible Fortran IV, and real-time executives and monitors that are said by Raytheon to enable the 704 to be used for scientific programming, graphics, batch processing. A mathematical library is also included.

### Duds-400

The Duds-400 display units are available as either stand-alone units, or can be connected to own computer or interface circuitry for remote single unit sites, or as consoles intended for use with a control unit in multiconsole applications. Control units and multiplexers are available as part of the product line.

## Head Hunters Promote, Manipulate, and Entertain

LAS VEGAS — If any of the people who attended the year's EICC switch jobs in the next few weeks, it may be attributable to the "head-hunters".

One man said that he had, on opening his hotel door one morning, found seven polite invitations to drop by one of several suites reserved specifically for separating a man from his job.

"They would be perfectly happy to sell us one of our own employees, if they thought dif-

ferent people might interview him," the man said.

With the tremendous shortage of available, trained, and competent personnel, even the most dignified of companies have resorted to such hiring techniques. ASR was told by one of the recruitment agencies that it explained that his firm could make an average of \$1,500 for every person it placed, easily paying for all the suites, food, entertainment, liquor, and promotional techniques.

## New Computer Joins General Automation Line

LAS VEGAS — General Automation has announced a new extension to the SPC line of control computers, the SPC-16. This, the largest of the SPC series, will feature higher throughput rates than its predecessor, the SPC-12, the company said. Compatible with the SPC-12, the SPC-16 will feature a 16-bit word length with a memory cycle of 960 nanoseconds and a storage capacity of 4K, 6K, 16K, or 32K words. The device will be equipped with eight general-purpose hardware registers. The instruction repertoire will be an extension of SPC-12's and will permit data to be bit, byte, or word formatted. General Automation claims that the execution time for an instruction will be under 400 nanoseconds.

The SPC-16 will use a parallel I/O system similar to that of current SPC-12. This design feature is said to minimize the need for external hardware. Up to 15 General Automation mini-controllers (system interface units) can be connected to the SPC-16 via a bus. The mini-controllers are designed to interface and control instruments, peripherals, data sets, displays, and keyboards.



Sanders System 6000

Sanders demonstrated their System 6000 display data recorder and controller configuration. Sanders says the system can take up to 12 operator stations and there is no need for tape pooling. Data batches are automatically merged on a single reel of tape.

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# Misuse of National Data Bank 'Inevitable'

**LAS VEGAS** — Misuse of the "inevitable" National Data Bank, plus a technology which will continue to advance faster than the people whom it serves, were but two gloomy predictions of the FJCC's panel discussion on "Computer-Related Social Problems."

**H.R.J. GROUCH** of the National Bureau of Standards called for safeguards in establishment of the National Data Bank, but said that its misuse was "inevitable." Commenting on apathy among computer professionals and the lack of dialogue between the professional and the layman,

Groch repeated the pessimistic sentiments which he first promulgated from the audience at the spring conference in Boston.

He philosophized that the society was "rotten to the core and decaying around the edges." Groch added that the hasn't changed his mind, and estab-

lished a new social thesis: "It is possible for things to get continually worse without limit."

**PAUL ARMER**, a former executive of the Rand Corporation and currently director of the Computation Center at Stanford University, beamed the rapid rate of technological development as a consequence to the "Peter principle" ("each man rises to his own level of incompetence"). Armer coined his own "Paul Principle": the people become uneducated and perform incompletely a job which they once performed well. "Or, more simply, the job out-grows the person."

Armer called on institutions and individuals to change their present attitudes and to learn to adapt to technological change. What is needed, he said, is rapid social change to keep pace with the industry.

The panel met for nearly three hours Wednesday evening, and continued to expand on problems areas all day Thursday.

**Beside** Groch and Armer, the panel included Edward H. Elings, president of Computer Professionals for Peace; and a member of the technical staff of Bradford Computer and Systems, Inc.; Professor George F.J. Lehrer of UCLA, a behavioral scientist; Dr. Karl S. Menger, research staff member at the SRI Computer Research Center; working on digital systems development, and founder of Volunteers for International Technical Assistance (Vita); Max Pfefferky, president of Xerox Data Systems (formerly SDS) and a member of the Urban Coalition; and panel moderator Dr. Donald Leibell, a former instructor at UCLA and a part-time volunteer with Vita.

## Publishers Charge EDP Industry Gives Them Half-Hearted Support

**LAS VEGAS** — Two industries deeply involved with the meaningful presentation of information confronted each other at the FJCC — and had trouble communicating!

An audience of about 250 met to discuss the role of the computer industry has been half-hearted and patronizing support to publishing applications.

Although numerically the audience was heavily weighted toward data processing, the attendees appeared sympathetic, in varying degrees, to the neglect from the publishers.

"If we were neglected wives, instead of neglected business men, we would see no non-support," asserted Kenneth Schurr of the Miami Herald Publishing Co.

Shurr's spirited presentation appeared to reflect the sentiment of many of his colleagues. Charging that publishers have inherited a "hodgepodge," he stated, "We're no farther along than we were two years ago."

The manufacturers' response did not deny the problem's existence, but it differed mainly in assessing the cause.

Comparing progress that has been made with what remains to be accomplished in hardware

and software support for publishing houses, Aaron Coleman of RCA injected, "Perhaps there's no money in it for us. We in the industry aren't doing it for love, you know."

IBM representative Robert Jefferson emphasized a "second wedge" separating the two camps — the lack of total systems approach. "We're in this state because we've taken a bit and pieces approach," he said.

A third bone of contention came from Lawrence Urdang, a publishing consultant. He noted that meaningful progress is frequently hindered by a result of value conflicts and misunderstandings between publishers, editors, learning media, a liberal arts approach and the technicians providing the systems. "The computer industry is force feeding systems into areas where they may not belong," he observed. "People can do certain things better than computers," he said, although without listing examples.

This problem is not the exclusive concern of automating the publishing industry. It cropped up in numerous sessions discussing the interface of computers and specialized industries. Al-

though polite applause greeted conciliatory overtures for closer cooperation, the tenor of the meeting seemed to echo, "I hear you talking, but . . ."

Other panelists included Robert S. Cope, Auto-Graphics, Inc., Monterey Park, Calif., and Lynn Abbott of the Los Angeles Times.

## U.S. Congress Envisioned as EDP Disaster Area, Few Interested

**LAS VEGAS** — "Today's congressmen have 40 or 50 issues per session which need detailed study," Robert L. Chartrand, of the Library of Congress, told the session on "Computers for Congress."

"One-half generation ago, he had only one-half dozen," he said.

Information processing aid also needed because by the end of the decade, every congressional office will have 50% more people to serve, Chartrand said.

Congress currently has three computers. All are used for such applications as payroll and label printing.

John Salton, III of MIT said there is an EDP disaster area because so few people are working on the problem.

Two of the problems faced are the task of keeping track of 30,000 bills per two-year session and getting technical and political information from Congress. The latter, according to Salton, is the fact that government agencies now use more than 4,000 computers. Some knowledge rubs off on Congress, and younger legislators in particular are becoming familiar with EDP through use in campaigns for such things as simulation of voter attitudes.

John F. Harty of Aspen Systems Corp. felt that the major problem is the inability to process increasing amounts of information and to winnow out the irrelevant.

EDP for Congress has two aspects: the information Congress needs, and the information others such as businesses need about Congress.

Harty seriously questioned whether Congress would set up one central information system. "The congressional committees are almost 'independent fiefdoms.' It is therefore not at all unlikely that each would want his own information system."

Congressmen have the following suggestions to make in film sessions shown during the session:

John Brademas (D-Ind.) said

that unless Congress uses information processing techniques it won't be able to handle the complex problems of the 1970s.

And if Congress fails to take advantage of the new techniques, it will lose power to the executive branch, which is using computers and knows "knowledge is power." Among the problems to be faced is the fact that the computer age will come to Congress would be the ones inclined to use computers, posing a threat to the senior members who now chair the committees.

William Moorhead (D-Pa.) is cosponsoring a bill which is incorporated in the legislation bill and would provide a Joint Committee on Legislative Data Processing consisting of five members from each branch of Congress. This in

turn would supervise the operations of a legislative EDP center. There would also be an advisory committee of computer experts.

William Manspeizer (R-Mass.) called for application of systems analysis to social problems of the country. He noted one case where computers had helped find ways of reducing a local river pollution problem. He pointed out that congressional committees are interested in finding help in answering the volume of information inquiries they receive from their constituents. However, he said that incumbent congressmen had the use of computers in reducing their constituents' workload, and would "gain an unfair advantage" during election campaigns. Someone he said, the competitor would have to be given equal computer time.

## Data Guarded Through Use Of Character Substitution

**LAS VEGAS** — Julius Caesar, in 49 B.C., substituted letters in messages to his generals to confuse Pompey. A similar technique, considerably refined, has been suggested to protect data in computers.

"Poly-alphabetic substitution" was one of two methods of guarding data described by a 1,280-page report published in 1968. A similar technique, considerably refined, has been suggested to protect data in computers.

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"With a large enough key, it can be used to create more sophisticated codes than Caesar's cryptographers could ever have imagined, codes which defy being broken by even another computer," Ralph Skatrud said.

The system described can use five 256-character matrices which have 200 billion trillion trillion possible bit permutations.

A single one of these can be selected and, using as many as 1,280, and combined in numerous different ways.

These last combinations become the keys for ciphering or encoding messages. Such a system could encode all the data stored or transmitted by a computer, at a rate of 2,000 bits per second for 13 years. The technique is flexible, capable of being used with any size of system to provide the degree of security desired, Skatrud said.

The poly-alphabetic substitution technique uses alphabetic patterns of length 0 through 9, and other symbols which are continuously changing.

The random contents of the successive memories are selected by a stepped addressing control, and are summed, and mixed with the data being transmitted. Deciphering is an identical process. The data and key patterns are self-reversing; the same key and identical hardware are used to carry out both functions.

The second cryptographic technique described is known as "digital matrix transmission." Data is read into a matrix by rows and columns, under the control of two different sets of random digits in memory.

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## Dr. Householder Gets Harry Goode Memorial Award

**LAS VEGAS** — Dr. Alton Scott Householder became the sixth recipient of the Harry Goode Memorial Award at the FJCC luncheon held at the Stanford Hotel.

About 100 people were present when Afips President Richard J. Tanaka awarded the bronze medallion to Dr. Householder.

The award was established by Afips in 1964, and this year was presented to the head of the Mathematics Department at the University of Wisconsin. "For his impact and influence in computer science in general and particularly for his contributions to the methods and techniques for obtaining numerical solutions to very large problems through the use of digital computers."

Dr. Householder's contributions in computational algebra and numerical analysis have been recognized worldwide. These in turn have made possible many of today's effective applications of digital computers to the solution of complex mathematical problems.

Harry H. Goode was a chair-

man of the National Joint Computer Committee, and led this group in creating an expanded and strengthened organization, Afips, to help meet the needs arising from the rapidly growing information processing technology. He died in an automobile accident before Afips was formally chartered.

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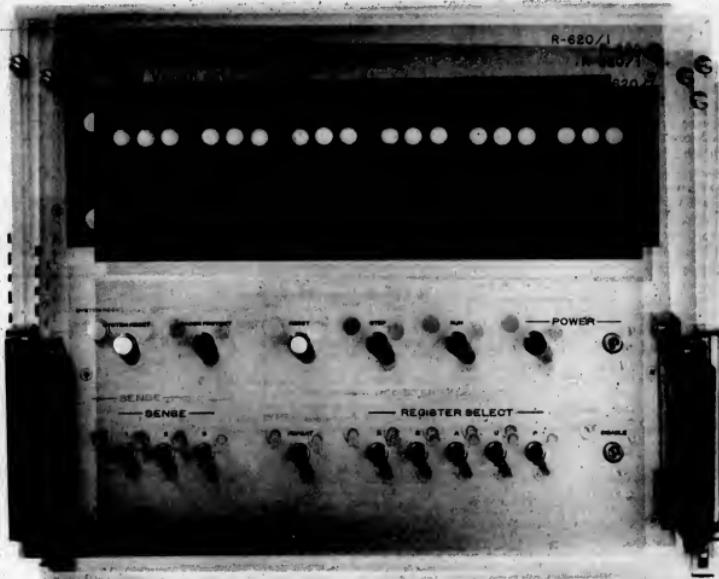
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the many 620/i's now operating. You also gain one of the most extensive service and maintenance organizations in the small computer field. Price: \$16,900. Write for full information on the Varian R-620/i.

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**Editorials****FJCC Problems**

Congratulations, Afips! This year's Fall Joint Computer Conference represented, in many areas, a major improvement over the last few shows.

Exhibit space was nearly sufficient to house all the companies who wanted to be in the show, conference facilities for technical sessions and, the exhibits were reasonable, and support facilities, such as electricians, telephones, and labor, were adequate.

But improvements in these areas have brought other problems to the top of the list.

Where can you find sleeping accommodations for two or three times the number of people who were expected to attend? Afips announced, in the *Las Vegas Sun*, that about 15,000 people were expected. But when the final totals are compiled, it looks like the figure will be more like 35,000 to 45,000. Las Vegas only has sleeping accommodations for about 35,000. People were forced to sleep in hotels as far away as Boulder City, Ariz., and on cots in the Convention Center.

Some veteran conference attendees now estimate that the spring conference in Atlantic City, N.J., may draw 85,000 people and next fall's conference in Houston, Texas, may draw nearly 100,000 people. These cities seem inadequate for such large conferences.

Neither city offers adequate transportation to handle the entrance and exit of such large numbers of people. Moreover, based on past experience, neither city will receive adequate warning of the real size of the attendance.

Some different techniques are going to have to be developed, and quickly, to cope with these problems at future conferences.



*'Was It Really Worth It?'*

**Letters to the Editor****Is CW Making Too Much****Of Privacy in Job Matching?**

Regarding the flap over computerized job banks and invasion of privacy, I am glad to see that *Computerworld* is taking a stand on the social implications of this very important issue, but I wonder if you are not making too much of it.

At the risk of seeming obvious, let me describe what I think are the essentials of man/job matching. Computerized job banks are designed to match individuals with their qualifications, in resume form, to be coded and entered into a master file. Job specifications are compared against people qualifications in a scan/search and the resulting matches become job applicant referrals. Very simple and straight-forward. The "hits" are candidates for the jobs at this point.

At some later point in the process, it is necessary to identify the individual to the requester. Your analogy of the bank book and the Telephone stock service misses one significant point. The Teletype is simply information retrieval of facts about known quantities at a point in time: price, volume, trading range, etc. The record for which information is requested is a single, inanimate, constant unit. There is no room for the facts. The information retrieval process is completely reactive. There are no iterations. Whatever the output, the requester must accept it at face validity.

Job matching, however, is a little more complicated. The unit of information - a candidate for the job opening - is dynamic: more than one can satisfy the search, and there can be iterations. The search results can change over time. The requester screens. He must review each candidate for his individual merit and decide to accept or reject. The computer has provided fewer, but more select, candidates to review. Its function was merely to pre-screen the facts (salary requirements vs. scale; geographical location of man vs. job; education or training required vs. candidate's qualifications etc.). At this point, the decision to accept is still tentative. The requester and the candidate must eventually come face-to-face for the final acceptance or rejection. There is very little anyone can do about maintaining privacy in that environment. Computer-produced resumes without names could be provided to the requester but I cannot imagine any profit-oriented organization making a real job commitment with some kind of investigation or interview. Certainly, privacy is "disturbed" whether it be done on a face-to-face basis, or by

the approach used by Insurance Companies, Banks, Executive Search Firms, Security Agencies, the Federal Government, etc.

Which brings me to another point. Mr. Loftus of the Mansfield Adjudication points out that a task force has been established to examine the issue of privacy. In its inimitable fashion, a federal government task force will be reviewing the issue long into the future and, most likely, long after the original proposal has been put to bed.

I fail to see what the real problem is. So much of our private lives is recorded in some computer or another somewhere. We have little difference in being known by by name or by Social Security number. There will always be some access through some agency to some part of my private life. This seems to be a fact of life, whether we like to admit it or not. Unfortunately, the job bank/privacy flap is something created by those of us who are very comfortable in our jobs, who have our hands to write letters like this. The man who is unemployed or underemployed could care less if his identity was made known to a prospective employer.

V.R. Cerriello  
Associate

Information Science, Inc.  
New City, N.Y.

For example, a person's uncodified identity could not be entered into the system and his identity certainly should not be made known to a prospective employer without his permission. Do you want your boss to accidentally find out you're looking for another job?

It's true that a person willing to spend the time and money, can piece together a dossier on you. But do you want someone to be able to do it in a reasonable amount of time? You're right that the unemployed person is in no position to worry about his privacy, and that's why it's important for us, the "comfortable" people, to speak out. Ed.



*Computerworld* welcomes comments from its readers. Preference will be given to letters of 250 words or less. *Computerworld* reserves the right to edit letters for clarity and brevity. Letters should be addressed to Editor, *Computerworld*, 797 Washington St., Newton, Mass. 02160.



COMPUTERWORLD



Bill Francisco explains how he turns discarded punched tape into pottery.

## Old Punched Tape Used To Make Decorations

**NEW YORK** — Bill Francisco's dislike of throwing anything away has led him to turn discarded punched tape into art form. Francisco, 38, of Flushing, N.Y., an American Air Lines supervisor, has found a fascinating use for the very durable — and heretofore useless — discarded punch tapes.

Francisco can turn one day as the punch tapes fall from the machine onto the floor, forming unusual shapes and swirls as they tumbled out.

Francisco got permission to take some of the tapes home and, since then, has been turning out vases, candlesticks, urns, and pottery pieces.

Using a home-made wheel much like that employed by potters, Francisco winds the tape into shape, then adds coloring or a finishing, finishing off with hardware.

Supervisor of agency and commercial sales audits for American, Francisco says his work is getting to be "quite popular," primarily because each piece is an original.

"They're mainly conversation pieces," he said, noting the pieces won't hold water — at least, not for long — limiting them to use as decorations.

Through trial and error he discovered a gluing process which almost suffocates the tape. After it dries, the pieces are colored and hardware from discarded furniture added.

Coloring turns the tape products to the greens, blues, and

goes similar to the hues found in old tape pieces.

Francisco, currently working on a cornucopia for Thanksgiving, spends about three or four hours on each piece.

He's thinking about starting a mail order business or, at least, going around to art shows to display his work.

He worked with pink, yellow, and black tapes and has been trying to find other colors, which he understands are available.

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## Federal Regulation of Data Acquisition Needed to Protect Privacy, Ervin Says

**WASHINGTON, D.C.** — Federal regulation of the use of computers in compiling data on private individuals was proposed earlier this month by a North Carolina senator.

At a conference on management science and information systems at the University of Pennsylvania's Wharton School of Finance and Commerce, Sen. Sam J. Ervin said that the most effective action Congress could take is the enactment of laws controlling the collection and use of data in certain areas.

"Computers represent a magnificent contribution to the progress of mankind," Sen. Ervin said.

However, he continued, the image of infallibility that the computer has acquired through folklore is not the image it is in the minds of those who have been, or will be, victimized or harassed by a computer.

### Privacy-Affected

The number of citizens whose privacy is affected is vast, he said. A survey by the Senate Administrative Practices Subcommittee two years ago revealed that there are 10 million in government files 2,800 million times. Our Social Security numbers are listed 1,500 million times. Police records number 264,500 million; medical histories, 342 million; and psychiatric histories, 279 million times.

### Government Use of Computers

Sen. Ervin cited several instances of government use of computers to collect and store information about people.

"The new plan of the Department of Health, Education, and Welfare to implement a social welfare program to the social security system raises serious questions of surveillance and privacy invasion on a scale never before experienced," he said.

There is also the Secret Service's well-meaning program to keep track of people who might

harm the President or other public officials. Included in this file is information on individuals who make oral or written statements about high government officials that constitute threats, intentional statements about administration, information on professional gate crashers; and information on persons who contact high government officials for the purpose of redressing imaginary grievances.

Many people, he continued, believe that the place to start with a complaint is with the President or Vice-President. Yet some of these people who write a strong letter never know that they have been fed into yet another government data system.

### Thousands of Complaints

It has been estimated that by 1970 the total statistical budget of the Federal Government will exceed \$200 million. If complaints to Congress are any indication, Sen. Ervin said, the number of individual rights of these statistical programs is growing devastating.

Congress has also received complaints about the practices of large credit companies. Ervin continued. "With their gigantic computerized data systems, they induce the most personal reva-

tions out of the individual through subtle threats or inducements of credit clearance. Yet the individual's buying and borrowing ability in this country and abroad is governed by the rapid computer transmission of information about him."

### Remedies

To mitigate, much less prevent these threats, the senator said, there must be controls of several kinds.

- There must be technical and mechanical security devices built into the machine.

- There must be controls for those who operate and who control the machines.

- There must be administrative data process, there must be controls over computer input and output.

- Some system must be devised to give the individual a chance to explain personal data susceptible to derogatory interpretation.

- Congress should enact laws to control the collection and use of data in certain areas.

- The Federal Government should establish an independent regulatory agency to control the vast problem of computer technology in the same way that other communications problems are handled.

## Data Security Session Draws Largest Crowd

**LAS VEGAS** — The session on "The Computer Security and Privacy Controversy" had one of the largest, if not the largest, attendance records for a meeting on this subject to date.

About 1,000 people gathered at the session started. Three hours later, there were still several hundred in the audience.

James Lohof of Ernst & Ernst, session chairman, reported that the early divergence of the session into a discussion of commercial areas of computer data

risks — as opposed to government classified hazards — apparently caused more interest in the subject than he has witnessed before.

Highlight of the meeting appeared to be the concern of a number of members of the audience about whether or not time-sharing companies were doing anything they can to protect user data files from accidental or intentional compromise.

Another highlight of the session was a lively discussion between Clark Wessman of SDC and Robert Swanson of IBM about the potential damage to an information system that could result from a power failure.

Dr. Willis Ware of Rand Corp. indicated that computer security problems are not insurmountable and if everyone in the computer industry did his part, computer data security risks of the 1970s could be significantly reduced.

## New Trial Rejected in Error Case

**FRANKFORT, Ky.** — An appeal for a new trial by the Ford Motor Credit Co. was rejected here in a case in which a computer error led to the wrongful repossession of an automobile.

A appellate Judge Scott Reed upheld an earlier decision to award \$7,000 damages to John T. Swanson.

Although he had been making

the proper payments, Swanson's car was repossessed when the company's computers indicated that he had been delinquent in his payments.

"In this computerized age," the judge said, "the law must require that men in the use of computer data regard those whom they are dealing with as more important than a performance on a computer card."

## No Agreement on Goals SicCas Holds a Small, Spirited Meeting

**LAS VEGAS** — Small, spirited, and splintered described the first official meeting of the ACM's recently formed Special Interest Committee on Computers and Law (SicCas) at the Fall Joint Computer Conference.

Only about 30 concerned professionals attended the evening session, which faced no organized competition, other than the city's fabled one-armed bandit and other amusement parlors.

"They're not here," said Robert P. Bigelow, committee chairman. "And I've got a mailing list of 150-200 names, too," he added.

Since the group's inception,

both project-oriented and administrative committees have been established. Project committees include data banks and privacy; jobs and automation; and education. Administrative committees have been formed

among those voicing sharply divergent views in the heated "where do we go from here" discussion were Bernard Galler, ACM president; Don Parker, ACM executive secretary; and Edward Ehrland, Computer Professionals for Peace.

Plans for SicCas gained little structure in about two hours of discussion, as the group struggled to achieve some focus on



## Not Topless, But Beautiful

Novation, manufacturer of sound reducing enclosures for Telotypes, transformed their exhibit area into an art gallery that surrounded several of their enclosures. Later the sculptures and paintings were raffled off.

## Ladies Committee Activities Swamped, Attendees' Response Unprecedented

LAS VEGAS — The activities of the Fall Joint Computer Conference ladies committee were hard to miss, partly because the 5-ft-tall, 100-lb green feather flowers worn by committee members, but mostly because of the unprecedented number of attendees.

By 3 p.m. of the first day, registrations had topped 650, and committee chairman Barbara White, beaming, "The response has been greater than anything we ever anticipated."

Her sentiment was borne out more than once. At noon, about 200 wives showed up for a scheduled luncheon, presented two hours' worth of prepared meals. Feminine ingenuity prevailed, however, and all were served. "Boy, we really stretched that chicken!" admitted committee member Chris White with a smile.

They ran short a second time in mid-afternoon, when their

supply of 400 colorful Mexican cactus-cloth tote bags gave out.

The wives were clearly interested in the computer, too, and asked questions and listened. Some 300 of them, eager to bridge their family communications gap, attended a morning session entitled, "What's It All About, Alfie?", a program designed to interface wives and the world of computers.

Some elementary programming was even accomplished at that meeting, and one conference wife from Illinois stated, "My husband is really proud of me I haven't game away much at all, and now I know a little more about him."

The combination of late evenings and early, more informal morning meetings presented problems for some. One lady skirted the wardrobe dilemma, however, by showing up attired in a mink-collared suede coat, slacks, and sneakers.

## No Topless Girls

# Competition From Girls Cited As One Problem Eliminated

LAS VEGAS — "With 175 new exhibitors and a Las Vegas atmosphere, I was afraid they'd go topless," said David Charles Asmus, executive secretary of Afips, the conference sponsor. "But they didn't."

Not only were none of the exhibit girls topless, there weren't even many of them compared with the spring carnivals in Las Vegas. More striking, the gaudy costumes were still the fashion, but the girls were more subdued in their actions and vocal patter.

Many of the exhibits were staffed entirely or almost entirely by men, suggesting that girls took too much attention away from the products.

### Power Supply Problems

The computer conferences require huge amounts of power, the most of any exhibition in the world today, Asmus said.

"Not only is the consumption

high, but there are multiple peculiar demands."

At the end of the conference, the power supply and distribution systems were doubled at both the Convention Center and the Sahara Hotel Exhibition Center.

Communications represented another power drain. "We told the Las Vegas telephone company what to expect six months ago," Asmus said. "We gave them the statistics on the Boston show and told them to double them."

"We ended up needing more than double the requirements,"

he said.

"More than 300 data lines were installed on the floor of the main exhibition area."

### Money Maker

Afips picked up about \$750,000 in gross revenue from the exhibits, but much of this will be eaten up by expenses. Final figures are not yet available.

The cost to exhibitors is high, running from a minimum of \$6,000 to more than \$250,000 for the three-day show.

## Biggest Gamblers Operate In Exhibit Hall, Not Casino

LAS VEGAS — Some of the biggest gamblers were in the exhibit halls, not the casinos. Many of the exhibitors were in registration, about to float a new issue, or still running on private money but looking toward the day when they go into registration.

They are gambling that they can build a successful company, and the investing public is gambling that they'll make good. They are gambling that they can build a successful company, and the investing public is gambling that they'll make good.

Another breed of gamblers, proving the exhibits were representatives of firms that had companies with a good device and insufficient capital. Such companies are often ripe for

mergers, acquisitions, or other financial deals.

### Portable Exhibit

Exhibitors ranged all the way from the giants like Control Data, which displayed a CDC 6400 system, down to the man who arrived with a plan with his manuscript on a lap.

Asked how long his device had been operational, one exhibitor replied, "About three hours."

"Of the some 60 exhibitors who cancelled out of the show, many said it was because their products weren't operational yet."

There may well have been more money won and lost in the exhibit halls than in the casinos,

## Button Button, Where Is My Mate?

LAS VEGAS — "Software is a Social Disease," "Go Forth and Multiply," "I Pray in Fortran," and so they went. Probably 50 different buttons were floating around Las Vegas during FJCC, booths in hospitality suites, and just around. Many didn't even carry a commercial. But, they showed where you'd been.

One company handed out "Meet Your Mate" buttons with a number on them. If you met someone with a button carrying the same number, you took your "mate" to the booth and got a prize.

Even state AT&T, now undergoing a revamping for a more youthful look, had a psychedelic

button saying, "The Bell System Makes Magnetic."

The buttons were only one of the gimmicks used to impress visitors. Several exhibitors had plotters drawing the perennial nudes. Some brought 10,000

mini-trifles marked "Iodises."

Bit Inc. and CTC handed out "gambling money." A free trip to Bermuda was the prize in one promotion. At least three brothels had women playing blackjack or shooting craps.



## Checking Heart Beat

Control Data demonstrated their new SC1700 computer by analyzing and interpreting the heart beats of a model wired wrist and ankle to a Cambridge Compuscribe electrocardiograph.

## Craps Computer Almost Craps Out

LAS VEGAS — At least one computer worked its way to the show. A Clary Datacomp 404 was installed in a club car and programmed to play craps with invited members of the press during the show's ride from Los Angeles to Las Vegas.

Trains, it turned out, have wild voltage fluctuations. And it wasn't until midway through the Cajon Pass that the 404 got on the air.

After that, it played craps beautifully, according to one of the guests.



The Photon System G transformed rough sketches onto a paper tape that later would be used to make a clear master drawing. The input unit console required a pretty girl to operate effectively.

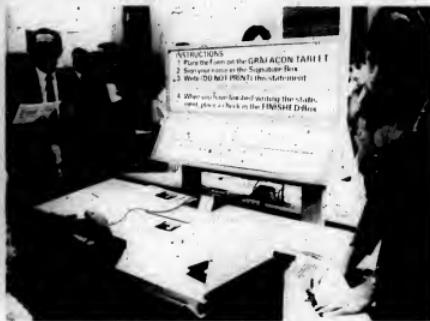
# FJCC Conference Sights at Las Vegas



The delicate design of the Sanders' booth was complimented by the bright spot lights.



Digital, CalComp, and GE were only a few of the companies seen from the top of the Control Data observation platform.



Raytheon's handwriting analyzer computer used a Bolt, Beranek, and Newman graphic input terminal. It told the writers under analysis only their good attributes.



The only thing that came out of the RCA's magicians top hat was RCA memory products.



Sparkling spheres presented sections of Lockheed's CM 300 (IBM 360 compatible bulk core memory) over the memory unit itself.

# FJCC Conference Sights at Las Vegas



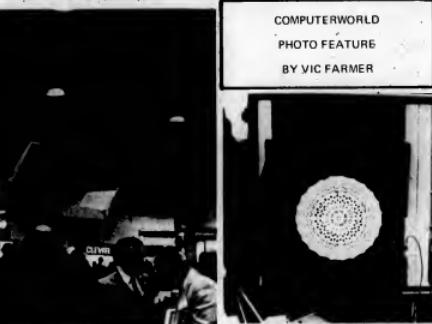
Ferrocube combined pretty girls and animated memory stacks in their presentation.



Sengamo storks carried the good news of three new additions to the Sengamo line that included a tape pooler.



Ominitec appeared poised for a moon landing of its own.



Redcor kept patterns turning on axis on their 755 display system.



Data General's display aims to get the message across—one way or the other.



Although the artist may have not known what a light pen was, he attracted the desired attention to EMR's graphic display.

COMPUTERWORLD

PHOTO FEATURE

BY VIC FARMER

# FJCC Conference Sights at Las Vegas



Pick a card...



And I'll show you!



How much better Dynelec Systems is.



Varian provided a short history lesson that showed the firm's progress since 1965.



IBM showed its System 3 and two communications units under glowing globes of colored light.



Edutronics offered more than cookies from behind the drug store counter.



A holiday trip to Nassau and an inexpensive keyboard-to-tape cartridge terminal highlighted the Data Input Devices display.

## Tuft Students Occupy Computer Center, Win Demands

MEDFORD, Mass. — Students occupied the computer center at Tufts University Nov. 12 to protest racial discrimination in hiring on a campus dormitory construction project.

The occupation was the culmination of two weeks of demonstrations, and the Tufts administration gave in to the students' demands that they had refused to concede after a sit-in in the administration building two days earlier.

### New Job Banks Called Success By U.S. Official

WASHINGTON, D.C. — The Nixon Administration's nationwide job bank system, which matches the unemployed to jobs by computer, will be expanded to 55 cities by next June.

Secretary of Labor George P. Schultz, in announcing the plan, noted that the experimental job banks already have shown that the system can double placement of the hardcore unemployed.

"The time is rapidly approaching when the people that men fear would steal their jobs will be finding them employment," Schultz said.

The job bank system uses a daily up-to-date computerized list of available jobs in a major city to facilitate placement of disadvantaged and unemployed.

Job banks already are operating in Baltimore; Chicago; St. Louis; Portland, Ore.; Hartford, Conn.; and Seattle. Others will begin operation shortly in Minneapolis; Atlanta; San Diego; Phoenix; Denver; Pittsburgh; and Columbus, Ohio.

Schultz said that 22 more are well along in planning and an additional 19 will be added soon.

Those in the planning stages are located in Milwaukee; Boston; Buffalo; Cincinnati; Cleveland; Dallas; Detroit; Houston; Indianapolis; Kansas City, Mo.; Los Angeles; Miami; Milwaukee; New Orleans; New York City; Newark and Paterson, N.J.; Philadelphia; Oakland, San Bernadino, and San Jose, Calif.

### New Guide Lists Nasa, Defense, AEC Software

WASHINGTON, D.C. — Software developed by the National Aeronautics and Space Administration and now available for use will be listed in the new publication, *Computer Program Abstracts*.

The quarterly journal will also list programs developed by or for the Department of Defense and the U.S. Atomic Energy Commission.

Yearly subscriptions are \$2.75. Single copies are 70 cents. The first issue, combining issues 1 and 2, will sell for \$1.50.

Further information may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

A spokesman for the students said that the computer center "is a nerve center of the university," and that they hoped "to stop business as usual at Tufts." The students agreed not to harm the computer if the school did not try to run it. During the occupation, power was run, and there was no damage.

The Honeywell 200 is used for payroll and accounting, as well as for processing student records.

A computer center spokesman said the backup tapes and master files were located elsewhere, and could have been run on other computers in the Boston area. "A prolonged takeover would have slowed things down, but not crippled us," he said.

The occupation began at 1:20 p.m. when about 150 students, led by the Tufts Afro-American Society, entered the building.

Some students moved into the computer room, but left almost immediately. The room was then locked and employees sent home.

The students remained in the building and did not try to get into the computer room. They stressed that they did not wish to damage the computer, but only to stop it from running.

About 10:30 p.m. the ad-

ministration announced that it had agreed to most of the student demands and the students left. In particular, Tufts promised that 20% of the work on the dormitory construction site would be from minority groups.

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## DPMA Holds Unbundling Briefing

# IBM Seen Competing for Software, Services Markets

LOS ANGELES An "unbundling briefing" from the user's point of view is being held by the Data Processing Management Association in six major cities. The first was held in Los Angeles Nov. 13. Users were told that their overall program costs will then drop from 5 to 20% after unbundling. IBM's policy of sep-

arately pricing products and services, goes into effect Jan. 1.

An audience of users heard George J. Ravazzolo, president of Advanced Systems Inc., speak on education costs and alternatives to Donald L. Lowe, manager of administrative services for Arthur Andersen & Co., speak on systems engineering aspects,

and William J. Bresnahan, president of Bresnahan Computer Leasing Co., analyze software costs.

Ravazzolo told the users that if they continue to use IBM's educational services as they have in the past, their overall costs will go up 10%.

Lowe said that where system

engineers formerly were free, they can now cost the user \$1,000 a week or the price of four System 3s.

Bresnahan expressed the opinion that IBM would have unbundled without government pressure as the systems engineering and education divisions were nonprofit and studies into put-

ting them into the profit scheme were underway before the antitrust protests. Another reason, he noted, is that IBM wanted to get into the burgeoning software field as an arena for future profit growth.

All three speakers told CW that IBM was not keeping a price umbrella over these areas—education, systems engineering and software—but was directly competitive in price. They felt this indicates that IBM wants the markets. They also thought that IBM will dominate these fields, not by the 70-75% that it has of the computer market, but by 90%.

Ravazzolo was the first speaker. He launched his talk by saying, "The mobility of programmers and analysts will get worse. We haven't seen anything yet. This will be due to companies beefing up their staffs to take up the slack for unbundling."

The users were then told they must conceive an education plan for their companies.

Ravazzolo said that education needs can be met by letting IBM users do the user wants a large increase in his costs; that unbundling is going to increase the need for employee training due to increased mobility; and that the only alternatives are to pirate or to go outside and hire a foreign management firm.

The best way to beat piracy of your own people is to have an in-house career path program supported by the education means, he said.

## Plane Wrecks ADR Building, Systems Saved

PRINCETON, N.J.—Applied Data Research, Inc., has resumed its normal activities following the crash of a private airplane into the company's leased headquarters.

The second floor of the building was almost entirely destroyed by fire, and the first floor was damaged by smoke and water.

"Both of our computer systems were saved, essentially in their entirety," said Warren Spaulding, vice-president of the company. "The 360 system is an IBM system in an IBM facility in Dayton, N.J., and the PDP-10 is being checked out at the Applied Logic Corp.

"We were in the process of expanding our facilities at the time of the fire, and had another 6,000 sq. ft. of space already moved into, and we obtained more space in the same building that was uncommitted at the time of the accident," he said. "Our corporate offices and our technical personnel are now operating from the new building," he said.

There was no loss of technical information in the fire, according to Spaulding. All of the information preserved on tape or disk as well as the master card files was saved.

The pilot of the plane, a pest-control and exterminating company, was released from the hospital following treatment.

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November 26, 1969

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A sample portfolio report generated from Xport

## 'Clo' Package Determines Pieces Cut From Material

RICHMOND PARK, Ill. A package named "Clo" (cutting layout optimization) is intended for use by companies that cut out big sheets of any material into smaller pieces and want to fed into the amount of waste generated.

The program, written in Fortran, will operate on an 8K, one disk, IBM 1130 or any equivalent or larger machine, according to the company, Data for Management Products.

**DMD.** An inventory of available raw materials that may be permanently disk stored and a list of the products to be made are the input of the program.

The package determines the pieces to be cut from raw material, the arrangement on the

sheet, the quantities of each item to be made per sheet, and the percentage waste generated from each particular cutting arrangement.

The program is available for operation in a generalized form which is priced at around \$3,000, including documentation and support. Clo can be tailored to meet the specific requirements of a given user, Data claims.

Laboring includes arrangement of the program to handle either sheet or coil stock, consideration for various material thicknesses and optimizing the program to fit the user's hardware configuration.

DMD is located at 2235 Gowenors Highway.

## Linear A Routines Compress and Modify Data for Transmission

PHOENIX. A package of file compression routines designed to compact alphabetic data stored on tape or disk has been developed by Academy Computing Corp.

The package, named Linear A, compresses data and puts it into new representation, making it easily transmittable, according to its designer, Bill Lumber, 1 University Center. Linear describes Linear A as "about as machine compatible as Fortran."

Linear A allows users of time-sharing computers to shrink their files, according to the company. However, the routines may be used by anyone who has large files of alphabetic data, the company continues.

The routines work on two kinds of data: repetitive data

such as contained in directories and nonrepetitive data such as ordinary discourse.

Repetitive data can be processed up to 4K of core memory, nonrepetitive data with a required lexicon runs on up to 12K of core.

Linear A is written in Fortran and Basic and runs on the GE-430 and 265 systems, although it was originally developed on the IBM 360 system. With the right instructions, Linear A can be rewritten in machine language for use with other machines.

The package is available free of charge to customers of Academy Computing's time-sharing service.

Academy Computing Corp. is located at 3424 North Central.



## Xport Provides Brokers With On-Line Access to Portfolio Appraisals

WALTHAM, Mass. An on-line computer program, called Xport (on-line time-shared system), provides money managers with instantaneous access to personal portfolio appraisal information.

With Xport, the user at his remote terminal can direct the computer in simple English-language terms such as "buy," "sell," "add," or "delete" and receive an immediate re-appraisal of any specific portfolio, according to the company.

With Xport, the user can determine cash balances at any given time, and provide immediate and automatic access to current prices for about 4,500 common stocks, including all New York Stock Exchange stocks, including bonds and cash, can be instantly determined and evaluated.

The program is offered nationwide from Interactive Data Corp.

It is an extension of the company's basic financial information storage and retrieval service, centering around a financial data base and used with a 360/67 computer.

With a single command for each transaction, Xport will immediately handle all portfolios and split them into all portfolios, determine cash balances at any given time, and provide immediate and automatic access to current prices for about 4,500 common stocks, including all New York Stock Exchange stocks, including bonds and cash, can be instantly determined and evaluated.

The program is written in Cobol, Fortran, and Assembly language and the storage capacity of the system is "practically infinite," according to a company spokesman.

Charges vary for customers and noncustomers and depend on the number of copies, amount of transactions, and number of seconds. The price range is from about \$2 to \$11 for 150 transactions with 120 listed securities per month.

Interactive Data Corp. is located at 486 Totten Pond Road,

Xport can be used as a bookkeeping operation. For example, if a stock is sold, the "sell" command tells the computer to post the appropriate information.

The program is written in Cobol, Fortran, and Assembly language and the storage capacity of the system is "practically infinite," according to a company spokesman.

Charges vary for customers and noncustomers and depend on the number of copies, amount of transactions, and number of seconds. The price range is from about \$2 to \$11 for 150 transactions with 120 listed securities per month.

Interactive Data Corp. is located at 486 Totten Pond Road,

## Services and Software Announced for Personnel and Recruitment Fields

Among recently announced services and software packages are several designed specifically for the personnel and professional recruitment fields. These include a temporary keypunch service, a data processing career planning service, and a personnel skills inventory system.

### Keypunch Service

A personnel service devoted to supplying temporary keypunch operators is available for the personnel and professional recruitment fields. These include a temporary keypunch service, a data processing career planning service, and a personnel skills inventory system.

### EDP Career Planning

Data Systems Service offers management consulting in data processing training and education to industry, government agencies, and school systems.

The service includes curriculum design and career planning for data processing personnel and executive management, according to the company. Director of the service is David S. Johnson.

Data Girl Service is located at 733 Mountain Ave., Springfield, N.J.

**DATA-GIRL SERVICE** offers management consulting in data processing training and education to industry, government agencies, and school systems.

The service includes curriculum design and career planning for data processing personnel and executive management, according to the company. Director of the service is David S. Johnson.

Carl Patella, executive vice-president of the company, said, "Our security reasons many organizations, such as banks and credit bureaus, just cannot allow data processing operation to be handled outside their premises."

At the same time, these companies' keypunch staffs suffer the same peak load and personnel shortages common to businesses in general," he continued.

The service charge is calculated on a per item basis and depends on the individual installation.

DSS is located at 59-25 Little Neck Parkway, Little Neck, N.Y.

### Skills Inventory

A skills inventory system featuring selective retrieval of combinations of personnel parameters such as experience, education,

special interests, and wage/salary level has been developed by Grace Computer Services, a division of W.R. Grace & Co.

The basic file contains Social Security numbers, descriptive and coded data. The codes can be automatically converted to equivalent descriptions when retrieved and reported. Input format is flexible.

Retrieval is by selection cards specifying conditions and logical conditions to be met. Up to 32 independent retrieval requests may be run at one time.

Three reports are produced: an occurrence count vs. selection criteria, a list of Social Security numbers for selected personnel, and an optional report containing descriptive and coded data that the user selects.

Formats for up to 100 different reports may be stored in the system for immediate use. A nonprogrammer can specify the reports to be produced.

The system is written in Cobol and runs on a 360/67 or a 360/30 (large) or a 360/30 (small) under DOS.

The system is said to cost \$10,000, including company-furnished installation, modification when necessary, maintenance, training, and documentation.

The system is available through Culilane Corp., 60 State St., Boston, Mass.

## Package Performs Accounting Functions

ENGLEWOOD, Colo. A Fortran IV remote batch business package (RBBP), a corporate accounting system, will be available in January 1970.

The package will be offered in addition to Computing Corp. of America's time-sharing business package and will perform the basic accounting functions including payroll, accounts payable and receivable, inventory

control, and balance sheet. A variety of information handling routines will be included.

The RBBP consists of each individual module consisting of the individual accounting functions. Each module may be used separately as a stand-alone program or as a part of the total package, resulting in an integrated corporate accounting system, according to CCA.

A variety of high-speed terminals

and equipment compatible with the firm will also be available, the firm said.

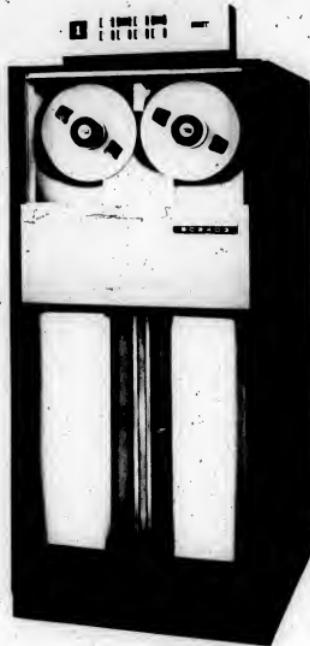
For \$20,000, the package ranges from \$40,000 to \$60,000, depending on the computer and operating system. Installation, training, and complete systems and operation are included.

Computing Corp. of America is located at 3385 S. Bannock St.

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Bernard Strassburg, FCC bureau chief, addresses communications users at conference session discussing telephone network interconnection.

## Communications Users Challenge FCC's Strassburg on Tariffs at Conference

By Ronald A. Frank  
CW Communications Center

**NEW YORK** Predictions that any Touch-Tone telephone could become a computer terminal with commercially manufactured equipment being used on the telephone network were among the points of interest raised at a conference of communications users here last week.

The meetings were sponsored by the Digitronics Users Association, and featured a panel discussion for computer users on the current and future status of data communications interconnecting with the switched telephone network.

Bernard Strassburg, chief of

the common carrier bureau of the Federal Communications Commission, appeared as a panel member to inform DUSA members of latest developments in the continuing FCC computer inquiry.

During a question and answer period, several delegates challenged Strassburg on the apparent slow progress being made by the FCC in resolving current problems.

One user specifically asked why tariffs have traditionally been based on recommendations made by telephone carriers, as the telephone companies. The user further suggested that FCC tariffs should do more to protect the user, and added that

tariffs should specify the level of maintenance to which the customer is entitled.

Appearing with Strassburg was Donald Baker, chief of the evaluation and assessment of Justice antitrust division.

Baker was instrumental in obtaining the recent Government ruling known as the Carterfone decision that led to the attachment of non-Bell System equipment to telephone lines.

Baker said that the telephone companies will have to prove conclusively that the interconnection of so-called foreign equipment will cause serious technical harm to the message network.

### Communications

#### Should Cross Examine

He suggested that interested parties including computer users should "be given a full opportunity to cross examine the [telephone] carriers" on their claims "of impending harm resulting from the interconnection of non-Bell equipment."

In this regard, Strassburg said the FCC welcomed the opinions of computer data users at the various Commission hearings and studies now in progress.

Gaylord Horton, vice-president of General Telephone & Electronics Corp., also participated on the panel and said that the telephone companies were certainly not opposed to the opening of the telephone network to commercially manufactured equipment.

He said that the carriers are only desirous of assuring that no harm will result to affect the network's technical integrity.

Horton added that current technology would make it possible to add pulse code modulation capability to the average telephone, making every telephone a potential computer terminal.

#### Other Suggestions

Among the suggestions raised were the possibility of the telephone companies charging a network usage fee only with all technically compatible equipment allowed to interconnect freely with the network. It was also stressed that Congress should give the FCC the go-ahead to acquire a technical capability of its own so it will not have to depend on such bodies as the National Academy of Sciences for technical evaluations.

Nas is currently conducting a study for the FCC designed to define the technical problems of interconnection.

The Digitronics Users Association was founded in 1966, and claims to be the only association of data acquisition and communication equipment users. The DUS address is Box 113, Albertson, N.Y.

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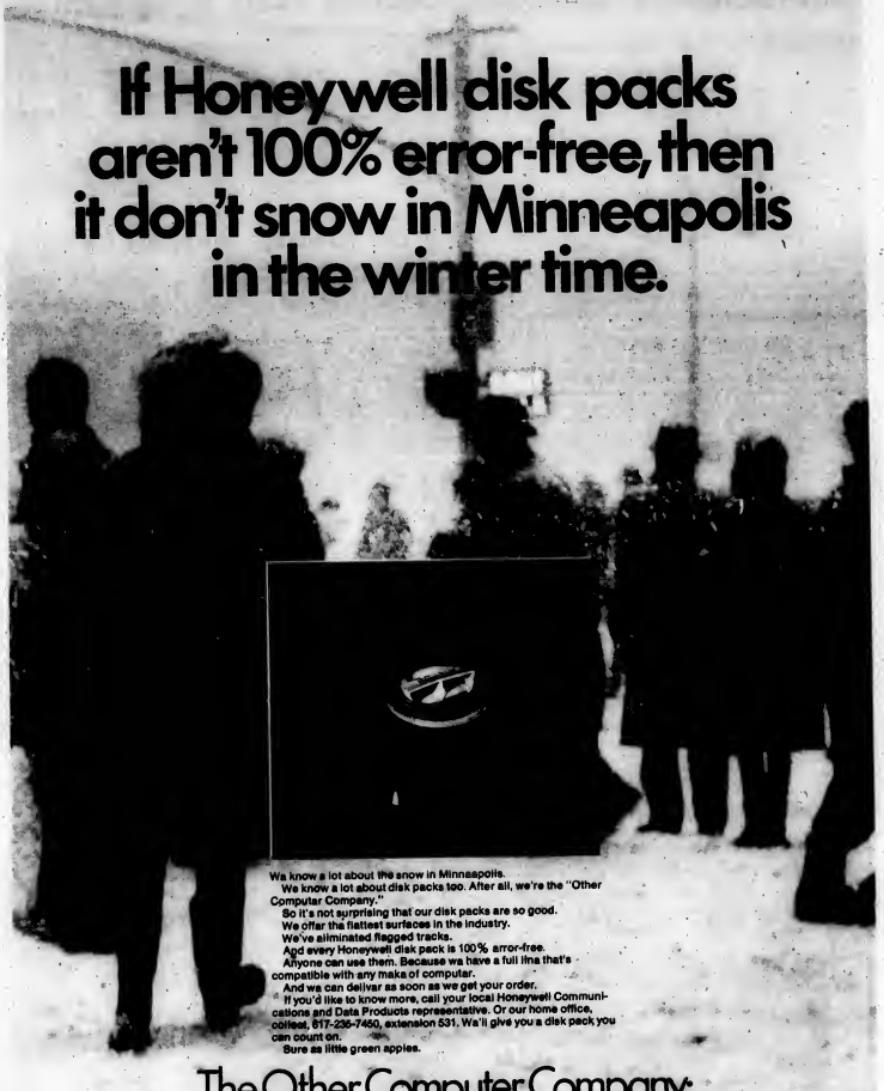


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**The Other Computer Company:**  
**Honeywell**

# Mini-Computer Controlled System Tests Equipment

**SAN DIEGO, Calif.** — A mini-computer controlled test system can subject complex pieces of digital and analog electronic equipment to 30,000 separate tests in less than two minutes, according to its developer, Convair Division of General Dynamics.

Designated Convair automatic test equipment (Case) 1109, the system is controlled by a VME 620/i computer with 16K of memory that allows a technician operator to initiate a test by typing in the part number of an item to be tested.

Case 1109 has a testing capability of 10,000 units (framing from electronic modules to rack-size systems) per month on a two-shift basis, according to Convair engineer B.A. Penner.

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IPS is interested in obtaining a number of 360 systems, CPU's, and components for customers. Among the systems wanted are a 360/40G CPU or system, a 360/50i, a 360/65 CPU, and 360/30 32K and 65K systems and processors. Peripheral units wanted include 2311's, 2314's, 2640's, 1403's, 2821's, 2400 tape units and 2803/2804 tape control units. If you have purchased equipment you anticipate selling in the near future, please write or call.

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## New Products

A feature of Case 1109 is a switching system that allows simultaneous interconnection of test instruments to pins of the unit under test. The system includes a waveform analyzer, a pulse generator, a waveform generator, a voltmeter, and seven programmable power supplies.

Test programs are written in a simplified form of Fortran, with which the test writer records the test sequence from the software library in the system control.

The price for the basic station of Case 1109 is about \$300,000. This price includes the VME 620/i computer, a standard array

of programmable stimulus generators, programmable power supply, interface and switching system, and programmable measuring instruments.

Support includes installation, documentation, an instruction course, service and maintenance for three months, and six months of consultation, according to the manufacturer.

Delivery is six to ten months.

The address of Convair Division of General Dynamics is Box

1128.



Convair Automatic Test Equipment

## Display Designed for Graphical Output

**HUDSON, Mass.** — The Fastplot 1200 incremental display for incremental plotters is designed primarily for the computer center where graphical output is a requirement, according to the company.

Datatrol Inc. says the Fastplot 1200 is a single-head incremental plotter, connecting directly to an interface and using standard plotting software. The display has a speed advantage of up to 100-to-1 over a mechanical plotter, depending on the software used, claims the company.

The user can do all deburring and formating of computer output, switching over to the plotter only when perfect hard copy is assured by the viewer image.

according to the company. Graphical information is displayed on a large storage screen so that after a plot has been drawn on the screen, it remains there until erased. Scissoring and magnification features are included in the display, allowing the user to zoom in and point to the plot to the first pixel of the screen.

Versions of Fastplot 1200 are available for 11-in. and .30-in. incremental plotters.

If a computing center uses an off-line plotter, the Fastplot 1200 can be used as an on-line previewing and diagnostic display. In this way, the plotting program stored on magnetic tape for plotting off-line is known to be correct, avoiding the delays in

continually returning tape for reprogramming, the firm says.

The display may be purchased for \$11,500. Leasing plans are



Fastplot 1200

available for as little as \$2,650/month. Maximum delivery is 60 days, according to the company.

Datatrol Inc. is located at Kane Industrial Drive.

## Device Scans Both Sides of Card

both sides of a card coded with 80 columns of 30 rows each instead of the standard 12 rows has been announced by Republic Electronic Systems, a division of Republic Corp.

Model 1500 reads standard punched information and gives the user the opportunity to provide repetitive information. In possible applications, the 30 rows might contain each of the 26 alphabetical characters, plus four special characters, or each column could contain six groups of

answers to multiple-choice questions.

The new unit costs \$76,000 or can be rented for \$1,500 per month. Read speed is rated at 3,500 cards per minute, whether reading one side or just one, according to RECS.

The unit has already been interfaced to computers in the Honeywell 200 series and to IBM 360s (Model 30 and up). Applications packages and tab cards currently available include Fortran, school registration, and multiple-choice formats.

The unit can eliminate key-punching entirely and is said to enable preparation of direct computer input by such people as students, employees, and summer panels.

The company is located at 9754 Deering Ave.

Correction



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New Products photos were incorrectly identified in the Oct. 15 issue. The products are correctly identified here and additional details relative to prices and manufacturers can be obtained from the earlier story.

## New Products

## \$15,000 Computer Includes Memory Protection Device

WESTMINSTER, Calif. — A \$14,995 system-oriented computer being offered here in areas such as protection testing, numerical control, biomedical systems, web logging, computerized switching, statistical analysis, and information retrieval.

Multidata's Model A computer includes in its basic configuration 4,096 16-bit words of core, memory, 32,768 words of disk memory, a memory access controller, a central processor, an input/output bus, and a teletypewriter with paper tape reader and punch.

Capabilities of the Model A include automatic program fragmentation, rapid context switching, privileged instructions, memory write protection, multi-level interrupt system, device independent input/output, command chaining, and data chaining.

A memory map (a complement of 20-msec registers in the core controller) helps to reduce memory assignment to each program segment. The map provision for memory protection allows pages to be coded for no access, read only, or read and write, the company says.

Each memory module operates

## Off-Line / On-Line Terminal Offered

CONCORD, Calif. — An alternative to the Burroughs TC-500 terminal computer is being claimed by Eldorado Electrodata Corp., with its new family of off-line/on-line terminals.

The terminals are housed in a desk-like unit, have up to 128 of core memory, and lease from \$148/month, the company said. In comparing the Eldorado Computer System with the TC-500, the company pointed out that the TC-500's 160 lines per second data preparation rate is 20 times faster than that in the Burroughs unit. The system can handle up to 72 peripherals and can multiplex over 50 lines simultaneously, the company said.

An IBM Selectric typewriter is used as a keyboard and data storage device, direct input onto magnetic tape cassettes or 1/2 in. standard computer tape through a converter.

The cassette units use 1/8-in. tape in 300-ft. reels. Density is 500 bits/in., with a maximum of 9000 characters per second. The unit reads and writes at 400 char/sec, and rewinds the full cassette in 45 sec.

The software with the system includes a built in loader, a debug and operating system, a two-pass assembler, diagnostics, and a demonstration program for payroll, inventory control, auditing, accounts receivable, billing, invoicing, and data acquisition.

The company's offices are at 601 Chalmar Road.

at an 880-nsec cycle time. The Model A accommodates up to 16 modules (65 536 word model), and each module requires the insertion of one printed circuit board assembly.

The input/output bus handles data rates up to 100,000 word/sec. For devices requiring higher data rates, the (optional) direct access channel approaches 1,000,000 word/sec. The counter module uses binary clocking circuitry to supply synchronized timing information.

## 7700 Computer Performance Analyzer Monitors Up to 18 Separate Operations

CHERRY HILL, N.J. — A computer performance analyzer has been developed by Computer and Programming Analysis, Inc., for users to analyze the operation of their system.

The CPA Series 7700 analyzer consists of modular units, capable of monitoring up to 18 different computer functions without interfering with normal computer operations, according to the company.

The unit consists of a control module; a counter module, and probes. The control module supplies the power and connections for the system. The counter module uses binary clocking circuitry to supply synchronized timing information.

in direct, real-time with increased accuracy, as much as one ten-hour bandwidth of an hour, according to the firm.

The interface to the computing system of the CPA 7700, a set of universal high-impedance differential amplifier probes, makes the analyzer compatible for use with any existing computer system, the company claims.

The CPA 7700 costs less than \$5,000. The company will install the analyzer. Cost for the three-day training is \$500. After training, the price is \$150/day, on a rental basis.

Computer and Programming Analysis, Inc. is located at 1103 Kings Highway North.



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By time-sharing data from 60 or more keypunch operators simultaneously, significant savings in data station costs of as much as 50% can be achieved. Costs drop to as low as \$4300 per data station for a typical 60 station time-shared data preparation installation; the time-shared input is the only economical way to go.

Data entered into the LC-720 is processed by a small digital computer and stored on an IBM/

360-compatible magnetic disc that provides the advantages of bulk storage and high speed random access of data. The problems associated with paper carriage, use of the mounting, handling, merging and unmounting of magnetic tape reels are eliminated. All data is conveniently and economically stored in an IBM/360-compatible magnetic disc at high speed. Input to your midrange data processing system. Naturally, IBM/360-compatible magnetic tape is also provided with the system as standard equipment.

The LC-720 KeyDisc System also offers for the first time, data verification and quality control, plus only one punch system. In addition to the normal technique of verification requiring two different operators, record size is infinitely variable by each operator from 1 to 120 characters, and the system stores a large library of 30 or more different format control programs, all available simultaneously to any and all operators.



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Logic Corporation invites you to see an operating demonstration of the LC-720 KeyDisc System at the company's presentation center. Bring your own data and Logic will provide a reel of magnetic tape of the output of your data from the LC-720, printed at your own computer facility.

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## Graphics Unit for On-Line Interactive Operations

MINNEAPOLIS, Minn. — A graphics terminal for use in on-line interactive computer operations where output must be displayed in graphic form has been developed by Control Data Corp.

Called Grid (graphic remote integrated display), the terminal receives input by means of a light pen, alpha-numeric keyboard, or function keyboard. According to CDC, display time for the graphic terminal is about 1/50 of a second.

The terminal can be operated in a remote location interconnecting with a central computer by means of telephone lines. A standard interface unit is included with the Grid system to allow use of either voice grade, low speed; or wide band, high speed lines, the company claims. A channel interface to a CDC 3000/6000 series channel is available for local use of the system.

The CDC Grid 240 series graphics system has its own pro-

cessor with a 4K, 12-bit memory that can be expanded to 8K or 16K through standard options. Any system can be used as the central processor, according to CDC.

The price of Grid is around \$70,000 (with a 4K memory) and lease price is around \$2,000/month. Delivery is 60 days. CDC says.

Control Data Corp. is located at 8100 34th Avenue South here.



Graphic Remote Integrated Display Terminal

## Programmable Data Terminal Combines Remote and In-House Capabilities

NORTH SYRACUSE, N.Y. — A programmable data terminal that combines the features of a small computer with those of a terminal being offered by Daedalus Computer Products.

The self-contained Model 711 programmable data terminal (PDT) is designed for remote use and is capable of working directly with a central processor. The unit "can be programmed to accept only entries as they are entered from the keyboard," stated Donald J. Jeffries, national sales manager of Daedalus. "This is accomplished at the terminal site without any additional equipment or optional accessories."

The unit has over 30 instruc-

tions in its repertoire — an alphanumeric keyboard, a 12-key pad, eight function keys, speed programming, a magnetic tape unit, and modem and core memory.

Data transfer rate of the device is 100 numer/sec. The 4K core memory is used for storage of both program and data information. The printing unit is capable of a .30 char/sec. printout on multipart forms up to 14.7/8 in. wide.

Production delivery of the 711 terminal is scheduled for December. Formal prices have not yet been announced but are expected to be under \$11,000, according to the company.

The company's address is P.O.

Box 4900 here.



Data Terminal

## Carrying Case Stores 4,000 IBM System /3 Cards For Transport

PALO ALTO, Calif. — A carrying case is being offered to store IBM System/3 cards during transport.

Tab Products Co. produces the case in high-impact, rugged plastic with dual follow-blocks, a capacity for 4,000 cards, and a locking cover. The cases are designed for nested stacking and

feature a recessed card holder. Tab Products Co. is located at 2690 Hanover Street.



Card Carrying Case

## Mini Pak-Rak Holds Disk Packs

MINNEAPOLIS, Minn. — A disk pack storage unit, the Mini Pak-Rak, is being offered from Kapko, Inc.



Mini Pak-Rak

The unit can store two 2310-type disk packs on top of a computer disk drive. The 2314-type drive will hold three Mini Pak-Raks which will store 16 disk packs.

The unit has a 16-page steel carrying case and a nonskid base and a choice of four computer-coordinated colors. The unit measures 17 in. by 7 in. by 12 in. high.

Kapko Inc. is located at 7615 Metro Boulevard.

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# Specialist Matched To Client's Needs With Retrieval Technique

NEW YORK CITY — A computerized system has been developed for matching available brainpower with defense and space projects.

The system, called personnel expedited retrieval technique, has been devised by Consultants and Designers, Inc., a service organization that specializes in technical and scientific staffing on a temporary and semi-permanent basis.

The system helps manage a "pool" of some 30,000 technical specialists, scientists, engineers, designers, draftsmen, and support personnel. Among the agency's employers are NASA's Apollo program and the Defense Department.

The company has developed a system that permits specialists meeting the basic requirements of clients to be selected from the file almost immediately. To achieve this, the computerized procedure catalogues personnel on file so that skills are isolated.

## Auto Club Plans Trips, Insurance With Computers

DETROIT — A computer-based system is helping the Auto Club of Michigan (ACM) provide travel and insurance coverage for 878,000 members.

ACM, lone affiliate of the American Automobile Association authorized to serve the entire state of Michigan, has accumulated information for more than a half-million trips planned for its membership with the aid of an IBM 360/50. The club also insures vehicles of its members through three associated companies.

ACM uses high-speed IBM 138" optical reader tied to the computer to process special hand-marked forms submitted by travel counselors according to travel destination. This data is scanned by the J247, and the resulting information recorded on magnetic tape for computer evaluation.

William Garrett, group manager for administrative and financial operations, said information gained in this manner helps the club determine favorite destinations of members and peak periods of travel.

"Last year, the club aided members in planning more than 550,000 domestic auto trips," he said.

ACM currently uses TV-like visual display units in the home office for instant inquiry into the membership and insured status of members.

The club plans soon to link its 360 system with IBM 2740 communications terminals to be located in branch offices in Michigan. Twenty-five such units — which will allow ACM to check within seconds all aspects of a member's insurance policy from nearly anywhere in the state — will be implemented by the end of next year, according to ACM.

and readily discernible.

Each employee's resume information is transferred to mag-

### Applications

netic tape by means of a punch card that contains the applicant's name and address, telephone number, job categories, years of experience, degrees, employment status, clearance, geographic preference, previous jobs and pay rates.

The magnetic tape file is coded, first by occupation and then by category. For instance, engineers are classified under 20 different

categories, or specialties.

When requests for employees are entered into the computer, an NCR 315, all the information stored on the magnetic tape is searched and the client's requirements are matched with the skills and experience of the personnel.

Where a match occurs, the computer prints the name, address, and telephone number of the specialist. The office then telephones the individual to determine interest in the job.

When a position is filled, the employee goes on the clients' Engineers' payroll. The company, in turn, bills its clients.



Instructions are entered into NCR 315 computer during run that will select personnel who match the needs of clients.

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William Petman, assistant overseer of weaving at the Springs Mills plant, dials in a request for information at the console of the Space Craft Control System.

## Production Control Data System Helps Increase Output at S.C. Sheeting Plant

CHESTER, S.C. — Putting a computer in the hands of every production worker has led to increased output at the new Springs Mills sheeting plant.

The new data processing system not only indicates its performance rating to an employee but also gives him the opportunity-to-improve operating efficiencies on all of the plant's 1,368 textile machines, according to the company.

The three major components of the system are a Varian 620/1 computer, a scanning and multiplex system, and a card reading and writing system. The entire data network for the plant was engineered by Space Craft, Inc., a Greenville, S.C., firm that spe-

cializes in applying aerospace data handling techniques to industry.

The real-time production control data system also provides machine stoppage statistics and instant signals to dispatch repairmen, production data, and production totals by shift and day.

The system, according to Space Craft, can handle data entry, control, automatic payroll compensation, eliminating card punching, preventive maintenance schedules; cost accounting and reduction in supervisory personnel allowing management by exception.

### Control Words Simple

No skilled personnel are required for the operation of the equipment. All of the control nomenclature is in the everyday language of the plant.

Weavers, fixers, and set style are typical occupations using the computer console. The computer programming itself is so versatile that the weave room overseers can modify it for the production of different styles merely by turning a thumb wheel.

Included as part of the system are the visual displays located in

the central station and at remote units on the plant floor. Digital readout tubes display on command overall weaving efficiency for the present and the previous shifts.

Thomas E. Springs, Mills owner of weaving, reports that the display units in the work area provide strong motivation for production workers by allowing them to gauge their own performance, not only against the entire weave-room average, but also against their fellow workers.

Another function of the computer unit is to produce reports through a 20-line-per-second printer both automatically and on command.

Excerpts of these summaries that are selected are presented at shift end or at any point during the day are: day of year; shift number; shift running time in minutes; loom group efficiency; individual machine information; group by style with operator setting; and the total number and efficiency of each individual loom with the total number of work stoppages for each, and the number of looms operating below any given efficiency level and identified by weaver or lover.

## Bellevue Plans Health Service Improvements

NEW YORK — Thousands of underprivileged children will benefit from a computerized, records acquisition, analysis and retrieval system presently being developed at Bellevue Hospital.

The purpose of the Bellevue Pediatrics Project is to integrate the widely scattered pieces of the health records of the 25,000 children presently using the hospital. It will also assist in the provision of comprehensive health services to the 35,000 other young people in the Bellevue area.

According to the hospital, medical care now given to the children of low income urban families is fragmented among large metropolitan clinical child health, educational, health services, voluntary hospitals and clinics, and other charitable organizations.

No one element maintains responsibility for the total health needs of the children and there is no way to determine if health services are being provided at all.

### Lack of Communication

Much duplication of existing records and there is a lack of communication among health workers at all levels. Often, problems of language and language barriers complicate communications between the patients and the medical staff.

Dr. Leo Tisk, director of records retrieval for the project, explained that the system will be operational within a few weeks with the installation of a Univac 1108.

The computer will be installed at the "New York University Medical Center. Communication

will be over telephone lines between the New York's Lower East Side and Bellevue.

The physicians themselves will not operate the system. Computer-acceptable data will be produced as a byproduct of their routine medical activities. This information will be handled by programmers and computer operators.

### Share Information

Other health facilities such as child health stations and schools have been invited to share the health care of the patients seen at Bellevue in the preparation of their information in computer-acceptable form. The system will eventually include means for input and retrieval of information by physicians who may see the same pediatric patients from time to time.

The project is supported by a grant from the Children's Bureau of the Department of Health, Education and Welfare.

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## Stacked . . . But Not Sorted



A group of data processing students recently formed an organization at Northern Arizona University (NAU) in Flagstaff to help them compete to publicize their club and draw the attention of prospective employers. They can hardly be blamed if the winner, Miss Kathie Kline, a 19-year-old sophomore, fails to attract the desired interest.

NAU's four-year EDP program now produces about 20 graduates a year.

## "Total Involvement" Characterizes CDC Approach to Successful Slum Production

MINNEAPOLIS — Control Data Corp. is using the personal approach to show that it's possible — and profitable — to set up operations in a slum area using local labor.

The company's North Side plant, purposely set up in a poverty area, goes out of its way to help people — including young welfare mothers, ex-convicts, and high school dropouts — that it is sincere and that they are vitally needed.

Keeping in mind that altruism couldn't be tolerated as an excuse for the production of faulty computers, company officials developed a comprehensive program and benefits package aimed at boosting morale and

motivation. North Side officials term it a "total involvement" approach that offers an employee programs suited to solve those problems that might lead to absenteeism, production errors, and failure.

Included are a counseling program, day-care facilities, liberal dress rules, legal-aid assistance, and a job placement service. Monthly "communication" meetings, regular employee evaluations, medical assistance, and a variety of skilled and semiskilled jobs from which to choose.

North Side offers a 22-week training program. In-class sessions are 10 hours a week, and 12 hours are spent on skills training. New employees are introduced

to the basic hand tools and are slowly advanced through the more intricate controller operations.

Trainees, in a 2-1/2 hour session the first day, learn to eight-color code for wiring 6,000 feet of power wiring in a controller chassis. By the fourth day, they are wiring tiny resistors onto plates.

Hour-long motivation sessions take another seven hours. There, the trainees probe job-related topics ranging from the effects of gossip to the importance of being on time.

Corporate attorneys and financial counselors hold advice clinics, and trainees interacting them on how to deal with contracts, leases, credit, and account suits.

In addition, Minneapolis school officials conduct night classes at the plant for those who want to get a high school diploma.

And the company has no qualms about second-guessing itself, particularly where programs are concerned, and then making changes for better mutual return.

About six months ago, officials discovered that the plant was suffering from the usual slum-plant woes: production problems, low morale, absenteeism, and increased turnover — and a change was begun immediately.

Workers were given a larger voice in company affairs, new employee benefits were added, existing ones were expanded. The plant began offering more than simple assembly-type jobs.

Employees are evaluated quarterly for promotions and salary increases. Of the six left from the first training program of 10, three are now plant foremen, and all six have had at least two raises.

Manpower officials gauge a slum plant's success upon plant productivity, absentee and turnover rates, employee morale, and profit.

Control Data's plant has a relatively low absentee rate and a turnover rate of 6% monthly. Its production is on schedule, and orders for computer units are being completed on time.

"We needed these people to move into the plant," says Norbert Berg, vice-president for personnel services, who views the North Side operation as a vital link to untapped manpower resources.

U.S. Department of Labor officials and manpower training experts from the government have been watching the North Side plant, like what they see, and regard it as a good model for other firms to follow.

Critics contend that Control Data's North Side undertakings are not expensive, based on the firm's admission that by 1977 it will have spent more than \$6 million on it.

However, the firm estimates expenditures of only \$2,500 per trainee, a figure still below the \$3,000 average for trainees in federal job programs.

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## Placement Agency Trains Programmers; 50% Hired

NEW YORK — A college degree in high school, or a programmer aptitude test, usually considered big selling points for prospective programmers, failed to attract job offers even at the trainee level for about half of 19 graduates of a programming course offered recently here.

Data-Tech, a computer personnel placement agency, screened some 200 degree-holders from varied curricula by interviewing and testing prior to selecting 25 to enter into a 10-week, seven-evening course in programming. The class met four nights a week for sessions of three to four hours each.

Of the 25 participants, 19 completed the course, having written several Cobol programs. Data-Tech founder and president Jim Epstein explained the nearly 25% dropout rate saying, "It was such an intensified course that a lot of people couldn't shake free for the four nights a week. That's a pretty good grill."

"All the people were working during the day, nine to five. A lot of people dropped out

because, once you start meeting one or two classes a week, you're too far behind."

Also complicating the picture, he said, was the poor timing involved in putting applicants on the job market in the middle of the summer.

No firms rejecting candidates cited the relatively short training period as a factor.

Delmar felt, however, that the technically oriented recruiters were much more likely to hire than were those selected at random from a firm's personnel office.

He cited an applicant's verbal ability to sell himself to an employer as a common key factor and said, "I think [the firm] had originally hoped to place between 90% and 95% of students by being fairly selective at the outset. Because the firm makes a fee by placing the graduates, we summed up by saying that the project had been 'very favorable from the student's point of view, but not so much for us.'

## Hardware Mock-Up Provides Hands-On Experience Without Machine-Time Cost

NEW YORK — A package designed to teach fundamentals of computer operations by using the control panel of an IBM 360/30 has been developed by Programming Sciences Corp. (PSC), a software service firm.

Central to the training is the 60-lb Eduputer unit, equipped with markings, keys, switches and features similar to those of the 360/30, according to the company.

The Eduputer is accompanied by a set of instructional material, including a cassette recorder to tape lectures, a console, a terminal and student and instructor guides.

According to Alan Epstein, the Eduputer's inventor and director of PSC's educational services division, the program is aimed toward the tenth-grade level and requires no previous knowledge of data processing. He estimates that an average pupil should complete the training program in "between 35 and 40 hours."

### Operator Interplay

The student, first learns methods of console operation from the lectures and workbooks. He then practices them on the console.

The operator may be asked, for example, to display "Location 5000." The exercise to be performed, however, is not always so simple. For example, should he be displayed if the student goes through the main storage display

procedures correctly, 5A will appear in the main storage data register, 5000 in the upper part of the main storage address register when the display button is pressed.

If the student has made either a wrong command or addressing, the console display registers remain blank. Data at particular addresses is changed from exercise to exercise to avoid rote learning.

### Not Real Computer

Only predetermined operations and results can be performed, and the Eduputer is in no way, PSC stresses, an actual computing device.

PSC cites avoidance of machine-time expense and the individual, reusable nature of the training among the system's advantages.

Price of the entire package is

\$3,600, according to Epstein, with the Eduputer unit alone costing \$2,950. Quantity discounts will be available to non-vocational educational institutions, he said. A leasing plan from \$200/month is also available, according to the firm.

Priority applications for the package, the company believes, are nearly 6,500 business and government installations using the Model 30; secondary schools offering vocational courses in computer operations; and data processing schools.

PSC intends to develop additional models to simulate the 360/40, -50, and -65, according to Epstein, who also noted that the firm would consider developing units to match the hardware of other manufacturers. Initial deliveries are scheduled for January.

## Analog/Hybrid Use and Potential Explored in EAI Audio-Visual Kit

WEST LONG BRANCH, N.J. — An audio-visual slide presentation entitled "Understanding the Analog/Hybrid Computer" has been released by Electronic Associates, Inc. here.

Designed to explain the basics of analog and hybrid computers in a non-technical manner, the kit emphasizes ways in which analog and hybrid systems are currently being used, their

possible future applications, and distinctions between them and total digital systems.

The package, priced at \$100, is suggested for classroom or meeting use. It consists of a 32-minute audio tape, eighty 35mm color slides, and a presentation guide.

Contact Julie Collart, Electronic Associates, Inc., 185 Monmouth Pk., W. Long Branch, N.J.

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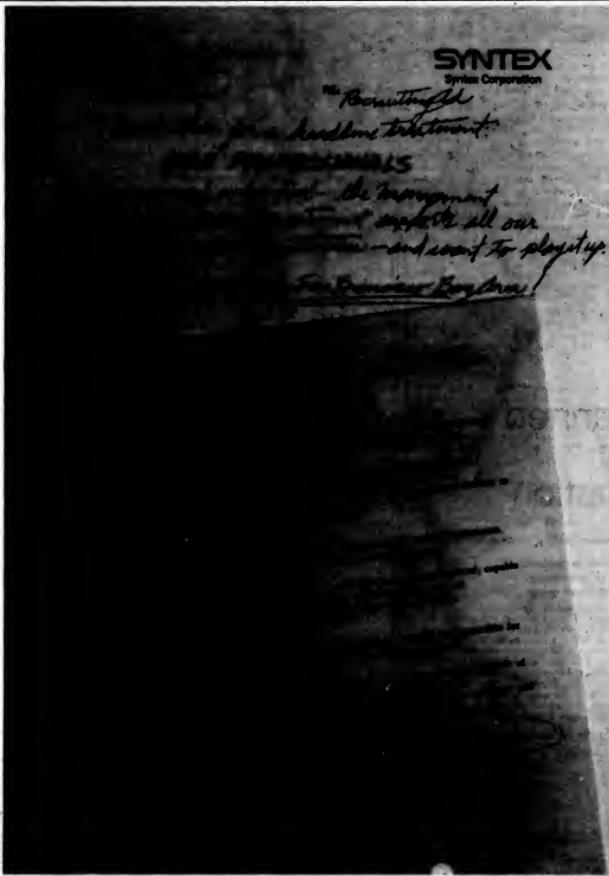
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## Three-Day AMA Conference Focuses Upon Unbundling Computer Support Services

NEW YORK — A three-day conference entitled "Unbundling Computer Support Services: Effects on Service Costs and Cost Strategy" will be presented by the American Management Association (AMA) Dec. 1-3 at the New York Hilton Hotel.

The format includes lectures, question and answer sessions, and round table "workshops" directed by the registrants. Among the featured presentations are:

"Effects of Unbundling on the Software Industry," Robert Kasse, vice president, Computer Sciences Corp., Los Angeles; "Unbundling and the Data Processing Service Center," Joan Van Horn, president, VIP Systems Corp., Washington, D.C.;

### societies

"Developing Alternatives to Computer Manufacturers' Education Services," Robert C. Cool, director of operations, MIS, Reynolds Metals Co., Richmond, Va.

"Developing a Corporate Cost Strategy in an Unbundled Environment," Arthur Ness, manager, computer planning and control department, Ford Motor Co., Dearborn, Mich.; "The User's Responsibility in Evaluating Competitive Software," John McNeely, manager,

systems evaluation, Scientific Resources Corp., Montgomeryville, Pa.

"Evaluating Independent Maintenance and Systems Support Services," Frederic G. Withington, senior consultant, Arthur D. Little Inc., Cambridge, Mass.

"Taxation of Software: implications and costs," Robert P. Bigelow, attorney, Edie A. Kiehler, chief technical and uniform audit function, Internal Revenue Service, New York, N.Y.; and Nicholas Ante, group supervisor, Internal Revenue Service, Buffalo, N.Y.

"Special Considerations in Systems Engineering Contracting," Arthur S. Liss, manager, technical service group, Arthur Anderson & Co., New York, N.Y.

"The New Environment and Its Effects on Hardware Selection," Frederick C. Ihler, president, Compress, Inc., Rockville, Md.

"The Leasing Companies in a Changing Environment," Paul W. Williams Jr., president, Booth Co., New York, N.Y.

Cost of the conference is \$200 for AMA members, \$235 for nonmembers. Preregistration for the program No. 6301-41, is recommended. AMA headquarters are at 135 W. 50th St., New York, N.Y.

## ACM Offers Two Communications Seminars in D.C.

NEW YORK — Two December seminars in data communications will be offered by the Association for Computing Machinery (ACM) in Washington, D.C.

Data Communications I, Dec. 9-10, is a foundation seminar developed by the Data Communications Group, Prentice-Hall Inc. and Prentice-Hall & Co. ACM says the seminar will discuss the "technical realities of data communications with attention to their effect on system design, new software development, management control, FCC traffic control regulations, and economic trade-offs."

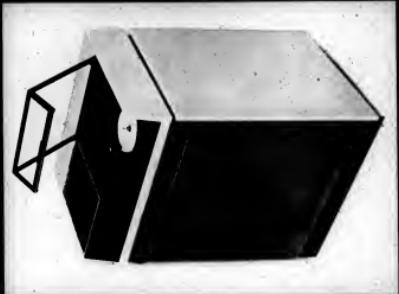
The second offering, Data Communications II, is an intermediate seminar developed by Contemporary Systems Corp., Bethesda, Md.

Developed for Dec. 11-12, it is designed to give experienced computer analysts insight into the task of data communications system design. ACM says it will highlight many of the potential pitfalls of implementation and will look at system planning problems, as determination of service requirements, selection of hardware, controls adequate to prevent loss or destruction of data, and evaluation of manufacturers' products and software packages.

Registrations are accommodation information, fee schedules, and additional information is available from the ACM at 1133 Avenue of the Americas, New York, N.Y. 10036.

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Illustration: ancient abacus by Red Gurnee; from *Encyclopaedia Britannica*

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Very simply, each new development has spawned more developments, erasing contemporary standards, setting even higher goals, allowing even greater advances.

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|                         | Access Time                   |
|-------------------------|-------------------------------|
| Track-to-track          | 10 ms                         |
| Average                 | 30 ms                         |
| Maximum                 | 60 ms                         |
| Start-Up Time           | 15 sec                        |
| Storage Capacity        | 7.25 million bytes            |
| Disk Speed              | 2400 rpm                      |
| Number of Heads         | 10                            |
| Number of Disk Surfaces | 10                            |
| Data Transfer Rate      | 156,000 bytes/sec             |
| Operating Environment   | 60° to 90° F,<br>8% to 80% RH |

## Specifications

### 714 DISK STORAGE DRIVE



|                         | Access Time                   |
|-------------------------|-------------------------------|
| Track-to-track          | 10 ms                         |
| Average                 | 32 ms                         |
| Maximum                 | 60 ms                         |
| Start-Up Time           | 20 sec                        |
| Storage Capacity        | 29 million bytes              |
| Disk Speed              | 2400 rpm                      |
| Number of Heads         | 20                            |
| Number of Disk Surfaces | 20                            |
| Data Transfer Rate      | 312,000 bytes/sec             |
| Operating Environment   | 60° to 90° F,<br>8% to 80% RH |

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November 26, 1969

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H.M. Kelsey Jr., president of Talcott Computer Leasing, is shown with the new Talcott 9311 disk drive by Singer's Friden division officials, C.V. Meyer, vice-president - advanced systems operations, and R.J. Campbell, president.

## Singer-Talcott Disk Deal Looks Like \$15M by 1971

NEW YORK - The Friden division of Singer Inc. and the Talcott Computer Leasing division of James Talcott, Inc. have announced plans to offer computer users a computer store, age device they claim can save up to 50% over the most commonly used computer units.

The agreement, which could involve over \$15 million of equipment by the end of 1971, calls for Friden to manufacture, market, and service the new disk drive, and for Talcott to lease the unit, designated the Talcott 9311 disk drive, according to Robert J. Campbell of Friden division and Harvey M. Kelsey Jr., of Talcott Computer Leasing.

The new disk drive features an electronic servomechanism that contrasts with the hydraulic

system used in disk drives of other major manufacturers. The servomechanism has fewer parts, resulting in greater reliability and lower manufacturing costs, according to Friden officials.

The lower lease rates to be offered by Talcott flow directly from these reduced manufacturing costs, Campbell and Kelsey said.

The 9311 unit was developed by Friden and will be manufactured by the Friden division at its advanced systems plant in San Leandro, Calif.

Monthly lease rates were set at \$600 for a one-year contract, \$375 for two years, and \$335 for three years. The rates include maintenance by Friden's nationwide, factory-trained customer service organization, and there is no charge for extra shift use.

The new disk drive features an electronic servomechanism that contrasts with the hydraulic

## Prudential Bid for CTI Control Off-At Least for the Present

By A. B. Williams  
CW Staff Writer

While it's too early to say that the acquisition of computer-related companies by major national organizations has become a wave, or that the wave is ebbing, one such transaction has been called off for the second, and presumably final, time.

Prudential Insurance Co. of America, one of the largest insurers in the world, and LTV Aerospace Corp., one of the most important pieces of the Ling aircraft structure, have ended negotiations for the sale, by Ling of its 71% interest in Computer Technology Inc.

The insurance company's negotiations with LTV Aerospace and CTI had apparently included a "premise" whereby CTI would have been in charge of a merged computer conglomerate in which Prudential's hardware would have been about one generation behind that of CTI, ac-

cording to an estimate by a high official of Prudential.

This and other factors are said to have been responsible for the projection that the two companies combined would have been combined with CTI's facilities management network on terms that assured Prudential of a reasonable cost and a profit to CTI.

### Generation Gap

The story, concerning the "generation gap," is quite interesting in that Prudential has historically been a major user of IBM equipment. Their computer facilities are said to consist largely of third generation hardware, including a large number of System/360s, ranging from Model 30 to 65.

There are certainly third generation machines, and the industry hasn't labeled anything as fourth generation.

The gap could be explained by the use of substantial 360 time

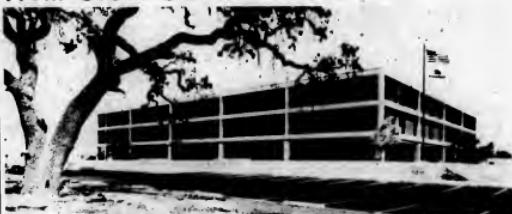
in emulation of second generation production programs, such as filing and sort-and-print. This could make for an attractive use of CTI's time-sharing facilities management operation. A Prudential spokesman said that his company has made excellent progress in a planned reorganization of its production facilities.

Other possibilities are that both Prudential and IBM might possibly have lost some, or eventually all control of the high hardware investment, which is said to include over 30 System/360s in Prudential's Newark headquarters, plus 20 or 25 in other locations, and a few 1491s and 7050s.

This is substantial, and both Prudential and IBM have benefited greatly from close cooperation over the years.

The negotiations involved about 70% of CTI's stock, below the 80% ownership necessary if Prudential were to want to merge CTI.

## From Great Oaks Do Little Acorns Grow



The IBM Federal Systems division building, recently completed at Westlake, Calif.

WESTLAKE, Calif. - IBM's Federal Systems division building, a contemporary, three-story concrete and steel structure described as an "architectural challenge in flexibility," is completed at the Southland planned community of Westlake.

The 130,000-sq-ft facility houses engineering laboratories, a computer center and office areas. Its main interior partition system is moveable and can be rearranged to accommodate new offices.

## ADR Report Reflects Programmatic Loss

PRINCETON, N.J. - Applied Data Research, Inc., computer software and service company, reported revenues for the third quarter ended Sept. 30, 1969 of \$1,610,336, and earnings of \$75,366 or 8 cents a share based on 965,428 shares outstanding. This compares with revenues of

\$1,261,720 and net earnings of \$90,291 or 10 cents a share, based on 944,782 shares outstanding, for the similar reporting period in 1968.

For the first nine months of 1969, the company reported revenues of \$4,656,131 and net earnings of \$152,891 or 16 cents a share, compared with revenues of \$3,307,735 and net earnings of \$208,110 or 23 cents a share for the nine-month period in 1968.

The figures for both compara-

tive periods have been adjusted to reflect the third quarter acquisition of Programmatic, Inc., whose revenues and net loss for the first nine months of 1969 were merged with Applied Data Research on a pooling-of-interest basis.

Richard C. Jones, Applied Data Research president, said that sales of "Autoflow," the company's leading proprietary software program, with about 900 installations, continue to meet earlier sales projections.

## Sales Up, Earnings Off at Levin

NEW YORK - Gross revenue of Levin-Townsend Computer Corp. increased for the first six months of fiscal 1969. Gross revenue increased to \$33,312,572 from \$22,993,380 for the comparable six months

of the prior fiscal year. Net income for the six months ended Sept. 30, 1969 was \$35,846,900, or \$1.04 per share, compared to \$1,196,789, or \$1.52 per share for the six months ended Sept. 30, 1968.

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## EDPeople

## IRC Elects Kuemmerle President

NEW YORK - John F. Kuemmerle has been elected president and also a director of Information and Research Corp., a New York City-headquartered electronic data processing company that offers a computer output microfilm system for the conversion of data information directly from magnetic tape to film.

Prior to joining Information and Research, Kuemmerle was a vice-president of J. Henry Schroder Banking Corp. and the Schroder Trust Co. Previous to that he was a director of systems and data processing for the American Express Co., and a committee member of systems at Merck & Co., Inc.

He is on the board of directors of Northwest Electronics Co., and St. Anthony Printing Co.

Borja Named Gen. Mgr. of Univac in Brazil

PHILADELPHIA, Pa. - Carlos F. Borja Jr. has been appointed general manager of Univac Brazil, a division of Perry Rand do Brasil.

He will be responsible for the marketing and servicing of all Univac products in Brazil, with headquarters in Rio de Janeiro. Previously he had been with Univac.

Borja was chief of the industrial development and intermediate credit division of the Agency for International Development, U.S. Department of State in Brazil, with responsibility for supervising all industrial development loans and grants from the Government to Brazilian industry.

Previously, he was deputy attorney general in the Department of Justice, State of California; zone manager Brazil for the Ford Foundation Co.; and a sales and advertising executive in Latin America for the

## Executive Corner

Futura International Co.

Paul Sternberg has been promoted to president of Data Systems Applications, Inc., a wholly owned subsidiary of International Industries, Inc., Beverly Hills, Calif.

Computer Sciences Corp., Los Angeles, has announced the appointment of David A. Woelner as director of New York operations for the systems division. Woelner will direct the systems-oriented services that Computer Sciences provides to commercial and industrial organizations in New York City, the middle Atlantic states, and New England.

Guillermo Perez has joined DMC Inc., Oak Brook, Ill., as senior associate of research planning.

Dave Jones has been appointed vice-president and general manager of Caelus Corp., Inc., San Jose, Calif. In his new position, Jones will be responsible for directing and coordinating the activities of all departments within the company.

Daniel Lecht has been appointed vice-president of Advanced Computer Techniques Corp., New York. Lecht is also president of the parent firm, Rhode Island Lithograph Corp., Providence, R.I.

Computer Communications, Inc., Inglewood, Calif., has announced the appointment of Robert Tagtow as director of operations of their Minneapolis system center. In his new capacity, Tagtow will be responsible for all systems support in the upper midwestern states.

Fabri-Tek, Inc., Minneapolis, has named William C. Lahn to the position of manager of Fabri-Tek Computer Components, headquartered in Blantyre, Scotland. He will have responsibility for all sales, service, manufacturing, and engineering.

Information Standards, Inc., New York, has announced two personnel additions. Larry Krassner, formerly vice-president, marketing for strategic datacenters, has been elected executive vice-president. Alan Gottlieb, formerly manager of product development at CIS Computer Software, Inc., has been appointed director of systems.

Federal Scientific Corp. of New York has announced the appointment of Joseph H. Flink to the new position of vice-president for computer analysis. He will be head of a group of system programmers and system engineers responsible for Ubiquitous analysis/computer systems integration and contract signal processing.

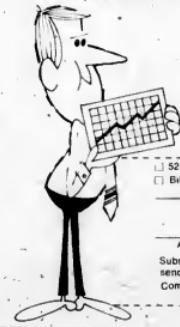
David Chernikow has been named engineering manager of the PDP-8 Division of Digital Equipment Corp., Maynard, Mass. He will oversee the engineering activities of the computer group and develop options and peripheral equipment for the PDP-8 family of small computers.

The addition of staff for the electronic systems division of the Air Force Systems Command, Hanscom Field, Mass., is Col. Charles G. Johnson, formerly chief of the division's field office in Bangkok, Thailand. He comes from John P. Cleary, who has been assigned to the Military Assistance Command, Vietnam.

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# Group 128 Underway to Provide Optical Design and Production

WALTHAM, Mass. — "Almost every new device in the computer field depends on optics," said Eric Grubinger, president of Group 128, the new company in high technology optics.

The company has been formed to provide optical design and production to supplement the electronics capabilities of computer manufacturers.

Examples of optics requirements include optical character recognition, mark sensing, pattern matching, microfilm, microfiche, laser storage, holography, plasma panels, and typesetting.

Grubinger was director of technical planning for Honeywell prior to his recent retirement.

"We have already achieved a sales volume large enough to convince us that computer-related optics is a very promising market," he said.

#### Other New Companies

\* Computer I/O, Inc., a complete OCR system, has been organized in Houston to provide services to the growing Texas Gulf Coast area through its optical scanning equipment. Heart of the system is a CDC 915 page reader. With this equipment and a CDC 1700, Computer I/O will scan documents and convert magnetic tapes or other input media for its customers to process on their own computers.

\* I/O Data Systems Corp., Oakland, Calif., will provide customized software and a complete range of computer services to business and industry.

Areas of specialization are bill of material, inventory control, and financial applications.

A completely integrated accounting system including accounts receivable, accounts payable, payroll, profit and loss, and general ledger is currently available.

\* Space Applications Corp., organized in Los Angeles, specializes in aerospace engineering, analysis, and design.

Space Applications' staff has extensive experience in satellite ground support software, orbital determination and trajectory analysis, and real-time computer systems.

The company has also entered the field of business applications, providing proprietary packages and programming and consulting services.

\* Computer Data Enterprises, Inc., Jenkintown, Pa., is a new company whose goal is "total data processing systems for business, government, and social programs."

CDE is preparing to handle complete problem areas. In addition to evaluating a customer's needs and implementing them with computer programs, CDE can mark, install, and maintain the system.

\* Simulation Associates, Inc., has been formed to provide education, software, and consulting across a broad spectrum of simu-

lation techniques and applications.

Philip J. Kiviat, president of Simulation Associates, is the author of two simulation languages, Simscript II and Gasp.

The company is located at 1263 Westwood Boulevard in Los Angeles.

\* Two data processing organizations have joined to form a teleprocessing company, a "tri-state" area and one of the largest in the nation in the field of savings association data processing.

The new company combines the resources of Tele-Accounting Bureau Corp., subsidiary of Ohio Valley Financial Corp., and Cen-

tury Data Processing, a division of Wabash Corporation.

The new Tele-Accounting Bureau Corp., of Cincinnati, Ohio, handles 11 savings associations having more than three-quarters of a billion dollars in assets.

The company serves two insurance companies, four insurance agencies, and a national construction company.

Tele-Accounting also offers programming and systems assistance and will be entering the time-sharing computer utility field in the near future.

\* Systems, Inc., a new electronic data processing consulting firm has opened offices in the Weber Building, 9420

Defense Highway (MD 450), Lanham, Md.

According to President Stephen Burkard, the company offers its clients a complete package of data processing services.

Systems, Inc., of Bethesda, Md., has commenced operations to serve the data management and computer software needs of the marine community.

ODSI will specialize in improving the accessibility of marine information required for planning and investment, research and development, and operation-

al decision making.

Specific plans include developing advanced marine data processing systems, improving marine products and services, enhancing use of coastal zone resources, strengthening policy-making, and improving safety, and broadening marine environmental prediction services.

Programs are now being developed to provide environmental support services to the oil industry, including sea ice forecasting for marine operations.

Dr. Jerome Moranoff is president of the firm located at 4715 Cordell Ave.

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## Contracts

Univac's Federal Systems Division received a \$1.35 million contract from the Naval Ordnance Systems Command for production of Mark 152 (Univac 1219B) computers to modernize the Tartar and Talos missile control systems. Production will be at the St. Paul, Minn., facility.

The Jacobs Co. of Chicago has selected Planning Research Corp. of Los Angeles to assist with research being conducted for the Department of Housing and Urban Development. The effort, Small Town Services, The study will concentrate on an evaluation of the needs of small communities and the role of HUD programs in meeting these needs.

The North American Air Defense Command has contracted RCA in the amount of \$150,000 to program the computers located in NORAD's underground headquarters near Colorado Springs. The computers will rapidly process and display data received from missile warning radars and other sensors strategically located around the world.

The University of Cincinnati has contracted Applied Dynamics for an \$11,000,000 hybrid system. The corporation, the system will utilize an Applied Dynamics/Four general purpose analog/hybrid computer interfaced with an IBM 1130 digital computer supplied by the

University.

Datamate Computer Systems, Inc., a subsidiary of Siboney Corp., has received a \$26,200 contract from the National Aeronautics and Space Administration for NASA's Goddard Space Flight Center in Greenbelt, Md. The contract involves Datamate's Model 16 compact computer, which will be used in a telemetry system to provide real-time data reduction and recording.

Ozark Airlines, Dallas, has entered into an agreement with Mutual Computer Services, Inc. for MCS' shared airline reservation system (Shares) that provides computerized reservations, message-switching, and other real-time services.

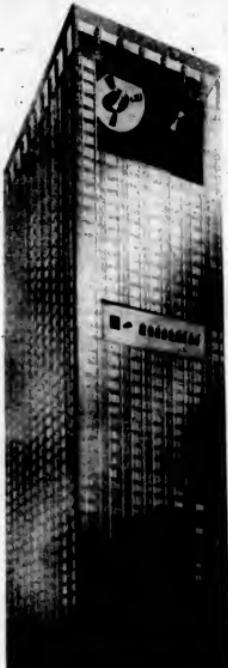
Intellectron International Inc. will supervise the construction and equipping of a computer center being built by Republic Corp. of Los Angeles. The center adjoins Intellectron's computer facility, and Intellectron intends to lease computer time from Republic on the new equipment.

Sanders Associates Inc. will install three electronic data display systems to Planning Research Corp. for an automated reservation system that provides users with instant rate, availability, and other information on more than 130,000 hotel and motel rooms located throughout the country.

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# Lockheed Plans Diversification; Forms Computer Service Section

REEDLANDS, Calif. — In a diversification move, Lockheed Propulsion Co. has formed a special computer services section to handle consulting services to outside organizations in southern California.

Firms throughout the area will now be able to draw on the firm's computer services department in both business and scientific development, and production of advanced solid propellant rocket systems.

The services range from basic keypunching to total programs individually tailored to a user's specific needs.

A specialized medical Billing program is currently in operation.

The staff at the Lockheed facility operates a fully equipped computer center which includes an IBM 360/40 plus a GE 635 that is interlocked with a Honeywell 120.

## Other New Subsidiaries

\* A new division devoted to the marketing of software packages has been formed by Applied Computer Sciences, Inc.

ACC, Inc., offices in Hartford, Conn., and Providence, R.I., provides data processing management consulting, systems design, and computer programming services, primarily to the financial and manufacturing industries.

The software packages will be oriented primarily towards the financial industry for use in the customer services area and for manufacturing companies in the production and inventory control areas. The packages will be developed by participating banks, client organizations and by the

company.

\* Computer Conversations, Inc., has formed a new computerized systems division, which will specialize in the design and implementation of integrated business systems for franchising companies.

The new division will provide a full range of systems consulting services covering the design, design, programming, and installation of manual and/or automated business systems for the client franchisors, and, if desired, their individual franchises.

\* A new federal systems division to provide highly technical computer programming services for governmental agencies, busi-

ness, and industry has been formed by Norwell Systems, Inc., of Norwell, Mass.

Operation of the federal systems division will be directed by Gene Patterson, a native Massachusetts man who holds degrees in engineering physics and industrial management from the University of Massachusetts.

\* The Signal Companies, Inc., entered into the computer/microfilm field through a majority interest in a new subsidiary, Data Dissemination Systems, Inc.

The new company will provide computer/microfilm systems for a wide variety of end users: DDSI will offer overall systems

capabilities including both software and hardware.

\* Information and Communication Applications, Inc., has established a communications division to give its clients technical services essential to the design, programming, and operation of any type of message or data computer-controlled communications system.

The division provides a single source for data gathering, transmission, and processing.

\* Auerbach Corp. and Comprehensive Designers, Inc., both headquartered in Philadelphia, have started a new company, CompData Services Corp., to engage in facility managing and manpower consulting for the computer and software industry.

CompData will fill specific requirements for competent data processing personnel created by the accelerated growth of computer technology. CompData, to be headquartered in Philadelphia, will staff computer programmers, systems analysts, and rely on a large volume basis systems analysts, programmers, coders and related personnel to meet peak manpower requirements.

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## Orders and Installations

The Belgian Post Office has purchased a large-scale optical character recognition system for direct reading of inpayment documents for all services in the Post Office-operated Giro organization. The equipment was ordered from Recognition Equipment France, S.A., Paris-based subsidiary of Recognition Equipment Inc. of Dallas.

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A Univac 1108, which will make data processing available to the entire university community at the State University of New York in Albany, has been installed in the S.U.N.Y. computer center.

Data Processing, Inc., a Jacksonville, Fla., computer service organization, has purchased a

Honeywell 2200 for installation in their new offices in the Gulf Life Tower.

S. Klein Department Stores, New York, has purchased a 3360 tape-to-tape translation system for the Univac 1108 and IBM 360 from SYS Associates Inc. of New York, N.Y. This is the second unit for Klein and will be installed in their computer center in New York City.

Manhattan Life Insurance Co. has ordered its third GE-225 information system to improve service to about 185,000 policyholders. The GE systems perform tasks ranging from payroll to stock transfers.

The Fluor Corp. in Los Angeles has ordered a GE-Pac 4020 process computer for installation in a nuclear fuel recovery plant on a closed-loop, control application.

The following customers have purchased NCR Century 100 systems: Michael Brucken AG, Hagen, Germany; the U.S. Army's Fort Monmouth general office functions, American University, Cairo, Egypt, for administrative chores; Fukui Vinyl Kogyo Co., Ltd., Fukui, Japan, to handle this plastic ware manufacturer's general office procedures; and Bothman & Tapscott Co., Ltd., Napier, New Zealand, for inventory procedures.

NCR Century 200s are being used by the Banco Iriquio of Madrid and Bank Oman in Teheran, Iran, to process accounts; the Guardian Building Society, London, to handle mortgage and investment accounts; and US Jydske Data Center, Vejle, Denmark, to enhance their data processing capabilities and Bertels N.V., Rotterdam, Holland, to process its mail order house transactions.

Automatic typesetting systems using Digital Equipment Corp.'s PDP-8/L have been installed in Belfast, Northern Ireland, and in the English cities of Coventry and Croydon.

Atlantic Software Inc. has received orders for the Score package from Lees Caskets, a division of Burlington Industries; the U.S. Dept. of Agriculture; and U.S. Dept. of Housing & Urban Development. Scores, operational at 60 sites in the U.S. and Canada, now include file management capabilities.

Squibb Beech-Nut, Inc., New York, will use Forecast, a financial planning computer program, in its corporate planning and budgeting operations. Software Services Inc. markets Forecast.

Franklin National Bank will install a "talking" computer, developed by IBM, to handle its customers' checking accounts.

Using an IBM 360 in conjunction with a 7770 audio response unit, tellers will tap a customer's account number into a Touch-Tone telephone to update a cus-

tomers account or inquire about its current status.

Jones & Laughlin Steel Corp., Pittsburgh, Pa., has ordered a GE-425 information system equipped with direct access programmatic system (Daps) capabilities for its G-1000 system. It will be used in sales analysis, sales planning, payroll, accounts receivable and payable, and billing applications.

Ames Corp. will supply an extended core memory to Philip Morris Inc., Arlington, Mass., for operation with an IBM 360/65 enabling them to offer their financial accounting service and terminal (Fast) program on a nationwide basis.

The Defense Supply Agency, Alexandria, Va., has installed a standard automated material management system at the Defense Construction Supply Center, Columbus, Ohio. The system is designed to mechanically perform material management functions.

Stuckey Stores, Essanay, Ga., a firm that manufactures and distributes pecan candy, has leased a Burroughs B2500 system for retail accounting functions such as accounts payable, general ledger, balance sheet, and management reports operations. It was previously inaccurate reported that the system had been purchased.

## Gary Popkin says, "Project planning can be improved with Brandon RMS!"

But that's only one of 12 major user benefits.

RMS is the new software package developed by Brandon Applied Systems. It plans, schedules, and controls equipment and personnel resources in EDP installations.

We'd like to tell you about the 11 other advantages of RMS at our regional Technical Briefings. Plain to attend. Simply call Ellen Kerker at (212) 757-2100 for reservations, or if you can't attend, request RMS information.

### Schedule of Technical Briefings

MINNEAPOLIS  
December 4

MILWAUKEE  
December 2

PITTSBURGH  
December 11

ST. LOUIS  
January 6

CINCINNATI  
December 9

ATLANTA  
January 8

BRANDON APPLIED SYSTEMS, INC.  
 1700 Broadway, New York, N.Y. 10019



# Time-Sharing's Capacity Grows; Extends Service Outside D.C.

WASHINGTON, D.C. - U.S. Time-Sharing Inc. has announced the establishment of full-service offices in Pittsburgh, Pa., and Baltimore, as well as new branch offices in Silver Spring, Md., and Washington, D.C.

A company spokesman said that two important factors underly the decision to extend the company's time-sharing and other computer services outside the Washington metropolitan area.

First, U.S. Time-Sharing's computer capacity has been increased five-fold, principally by the completion of an IBM 360/50/65 installation at its new offices in Reston, Va.

Second, the company's recently announced Share OS/360 computer system, a proprietary development of U.S. Time-Sharing, is suited to the needs of large industrial firms in Pittsburgh and Baltimore.

The Pittsburgh office is headed by John Martin and Jack McDowell, senior marketing representative. Baltimore sales manager is Jim Weller, while the new Silver Spring and Washington offices operate under the direction of sales manager Charles Post.

## CompuComp Opens New Graphics Center

NEW YORK - CompuComp Corp. has established a computerized graphics center at Five W. 26th St. here, offering computerized typesetting/composition.

Specializing in full page composition of directories and professional reference publications, the new facility is equipped with an RCA VideoComp, interfaced with an IBM 360/40 computer, as well as a variety of computer input and peripheral devices. The center is based on a newly developed proprietary universal composition language, said to permit economical computer-typesetting of college level textbooks, complete lists, subtitles, footnotes, bibliographies, and other relevant material, heretofore thought to be economically unfeasible.

According to a company spokesman, the company will also computerize the generation of original data, from proprietary sources, in the compilation and updating of directories where appropriate. Through its wholly owned subsidiary, The Gemini Co., computer graphics arts services will also be provided.

The new facility has already, processed directories and professional reference books, as well as law indexes.

## Other Expansions

Key Punch & Allied Services has opened a new facility in Bryan Industrial Park, Anaheim, Calif. The 18,000-sq-ft structure is designed to provide maximum efficiency in processing computer data 24 hours a day. Additional facilities include a tape processing and mailing service, with 24-hour availability of trained operators and a Univac 9200 II.

## Expansions

World Research Corp., parent company for Checkmate Publishing Co., Inc., Checkmate Ltd., and Meet-A-Match International, has added new facilities. The executive offices will be located at the North American Bldg., 36 S. State Street, Chicago. The company is a service organization in computer applications, management and engineering.

Programming Sciences Corp., software development and systems programming firm, has opened an office in the greater Boston area to serve as a center of operations in New England. The new office is located at 209 W. Central St., Natick, Mass.

Computer Personnel Consulting Inc. of Chicago has opened a branch in Milwaukee, Wis., at 811 E. Wisconsin Ave. CPC is a specialist personnel firm serving the computer industry with placement, executive research, recruitment consulting, and various other related functions.

(Continued on Page 43)



## YES!!

*Now you can solve tough problems on an inexpensive computer —*

The Model A lets you push deeper into an application than its 32K (optionally 64K) 16-bit words of memory need for the job, and the data base needed for executive analysis. And it keeps pace with a growing application — postponing or even averting a costly system replacement.

You have multilevel interrupt, rapid context switching, and a 1,000,000-word/second direct access channel for quick response in a real-time environment.

So buy the system-oriented computer that does it all — the Model A!

For \$14,995 you get a 4096-word, 880 nanosecond core memory connected THROUGH A MEMORY MAP to a 32,768-word, fixed-head disc, a 16-bit word processor, a 16-bit printer, and an ASR-33. Automatic program fragmentation and dynamic program relocation mean that your 32K programs will be executed from the 4K core at speeds approaching that of core.

## Computer and Time Share Users

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The unique plotting teletypewriter that will save you computer time

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Position \_\_\_\_\_

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City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Application \_\_\_\_\_

**multidata**

## Acquisitions

Remote Computing Corp., Los Angeles, has acquired Des-Comp Inc., a computer program that performs all types of arithmetic computations, stores values for later recall and use in computations; and computes the values of complicated trigonometric, exponential, logarithmic, random, or other user-defined functions. Remote Computing offers a

complete range of computer utility services including time-sharing, remote batch, and on-site computing.

Computeriology, Inc., Milpitas, Calif., a company that renders on-line and off-line computer services, has acquired Action Press, Inc. through an exchange of stock. The exact terms of the transaction were not disclosed. Inca, an engineering organization, performs sophisticated design and structural analysis utilizing large-scale computer programs.

### COMPUTER SERVICE BUREAUS WANTED

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Chicago

Los Angeles

Washington, D.C.

\$25 million, public EDP firm serving the accounting profession seeks acquisition of service bureaus to insure processing quality on a national basis. Cash and/or stock accepted.

Reply to Chairman  
Box 3129, 60 Austin St.  
Newton, Mass. 02160

## HAPPY NEW YEAR

NOV IS THE TIME TO INVESTIGATE  
THE BETTER OPPORTUNITIES THAT ARE  
CURRENTLY AVAILABLE. YOU COULD BE  
CELEBRATING THE NEW YEAR BY BEING  
EMPLOYED IN A MORE PROFITABLE  
ENVIRONMENT.

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Looking for a new challenge? Computer salesmen will be paid to professional salesmen possessing 3-5 years sales experience in the following areas: Service bureau, hardware systems, software, time-sharing, peripheral, EDP supplies, or business system products.

### PROGRAMMERS/ANALYSTS

\$10,000 to \$22,000 salary plus full benefits are open to the trainable programmer or the experienced analyst/programmer who is management minded.

Make a positive move for the New Year now, contact:

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Sales/Marketing

Mr. AL JASON  
Systems/Programming

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1403

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729's

TOPAS COMPUTER CORP.

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(212) 777-3200 EXT. 202

closed. Action Press, with headquarters in Chippewa Falls, Wis., is a specialized framership company under the name of "Shopping Guides of America."

KPA Nuclear, Inc., Pittsburgh, a nuclear engineering firm, has completed the purchase of Inca Engineering Corp., San Gabriel, Calif. Terms of the stock transaction were not disclosed. Inca, an engineering organization, performs sophisticated design and structural analysis utilizing large-scale computer programs.

Prudential, Inc., Southetherton, N.Y., has purchased 51% of the stock of Associated Computer Management, Inc. of Rego Park, N.Y., a company that markets special programs developed for medical centers utilizing electronic data processing. Datadial, a company engaged in facilities management for government and insurance agencies that permits immediate access to its time-sharing data processing facilities.

Pulsar Computing, Inc. of San Francisco and Fullerton, Calif., has announced the acquisition of Turner, Brown and Associates of San Francisco. The deal primarily concerns software and systems development.

Data 100 Corp., Minneapolis, has announced an agreement in principle for the acquisition of all of the assets of Rodale Electronics, Inc., of Garden City and Westbury, N.Y., in exchange for 100,000 shares of Data 100 common stock for one share of Rodale's Electronics common stock. Data 100 is a designer and manufacturer of computer terminal equipment and systems, which provide computer users with the capability of transferring information between centralized computer centers and remotely located offices and sites. Rodale Electronics manufactures electronic equipment for military and commercial use.

E.P.C. Computer Services, Inc., New York, a data management consulting firm, has reached an agreement in principle for the acquisition of Prudential Travel, Inc.

American Automation Training

Centers, Inc., Kansas City, Mo., has agreed in principle to acquire National Institute of Meat

Packing, Inc., Mundelein, Ill., as not disclosed by AAATC Inc.

offers a combination of training

course in introduction to computer programming and the operation of related unit-record equipment and keypunch.

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offers a combination of training

course in introduction to computer programming and the operation of related unit-record equipment and keypunch.

Consolidation of Associa-

metrics Inc. of Dallas, and Computer Utilization Inc. of Atlanta, Tenn., has been approved by the boards of directors of both companies. Under the consolidation a new corporation will be formed to be called Computer Utilization-Associometrics Inc. Both companies will operate under their present names after the consolidation. Associometrics develops software packages for the legal profession, real estate business, and a number of general purpose data management and control systems. Computer Utilization is a management and computer consulting firm.

Branded Applied Systems, Inc., New York, has announced that negotiations for the acquisition of Systech and Oughton, Inc. and its affiliated companies have been terminated.

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inside  
news.

EDP Industry Report, "the gray sheet," is generally regarded as the most authoritative source of news facts and figures on the \$12 billion computer industry. The bi-monthly news provides subscribers with facts, ideas, and insights on the computer market. Its well-researched contents have enabled it to become one of the most quoted publications in the EDP field.

EDP/IR is published 24 times a year by the International Data

Corporation, the largest market data gathering, analysis, and

publishing company in the computer and information processing

industry. Subscriptions \$75 per year. Free copy of annual Review

and Forecast issue sent with pre-paid subscriptions. Write:

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report  
Department D-15  
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Newtonville, Mass. 02160



# Position Announcements

## PROPRIETARY SOFTWARE PROGRAMMERS & ANALYSTS

Several interesting and challenging openings exist for highly motivated individuals to contribute to the growth of ADR's Proprietary Software Division.

### SYSTEMS ANALYSTS

College degree in mathematics or industrial engineering experience in simulation modeling using such languages as GPSS or SIMSCRIPT; basic familiarity with large-scale hardware; knowledge of FORTRAN IV; working knowledge of FORTRAN IV; operating systems experience.

### SYSTEM PROGRAMMERS

College degree or equivalent; in-depth knowledge of OS/360; experience with multi-programming under MFT, MVT.

### PROGRAMMERS & SENIOR PROGRAMMERS

1-3 yrs. experience in system programming; large-scale computer experience including SJ360 OS/MFT, MVT, BAL; FORTRAN IV; COBOL; H-200 Easycoder.

Please call or send resume and salary requirements to:

Technical Director, Proprietary Software Division



APPLIED DATA RESEARCH, INC.

Route 206 Center, Princeton, N.J. 08540  
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Announces career opportunities in our modern-thinking organization. A new P.D.C. Technology has opened an \$8 billion market potential for our products in E.D.P., Communications and Information Storage and Retrieval Fields.

### PROGRAMMERS

Minimum of three to five years experience. Position requires a person with initiative and imagination. Some travel involved.

### SYSTEMS ENGINEERS

Minimum 3 yrs. experience designing and installing information storage and retrieval or E.D.P. systems. Strong information systems background. How analysis experience required. Some travel involved.

### SYSTEM SALES

Minimum of 5 years experience in peripheral equipment and computer related areas. Position requires a person with initiative and imagination. Some travel involved.

### COMPUTER SALESMAN

Minimum of 5 years experience in peripheral equipment and computer related areas. Position requires a person with initiative and imagination. Some travel involved.

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## EDP TRAINING MANAGER

Do you have a sufficiently comprehensive technical background in EDP to qualify you to develop realistic career paths for data processing personnel? Have you the capability to devise and implement productive in-house EDP training programs for operators, programmers and systems analysts? Can you relate well to non-EDP management in developing their basic understanding of data processing?

We have such a new management position available. We require a strong results-oriented self-starter and not a stereotyped training specialist.

Requirements: College degree in Business, Computer Science, or related field. Must have teaching or instructional experience in a university or at the corporate level in EDP systems and hardware applications. Must have three to five years business systems and programming experience.

Send complete personal resume, including salary history and requirements to:

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## SYSTEMS ANALYST

## MANAGEMENT INFORMATION SYSTEM

The new M.I.S. program being developed has created a need for a Systems Analyst with 2 years programming & 1 year analyst background. Positions provide excellent salary, bonus and benefits.

Westfield, New York, a progressive community near beautiful Lake Chautauqua, offering year round recreational opportunities: skiing, boating, water skiing, golf, concerts, plays, etc.

Please send resume & salary requirements to:  
D.G. Silberman, Employment Supervisor



**WELCH FOODS, INC.**  
Westfield, New York

An equal opportunity employer M/F

## Earnings Reports

### AUTOMATIC DATA PROCESSING

Three Months Ended Sept. 30

1969 a1968

Shr Emd \$ 37 5.29 5.29

Revenue 7,371,704 6,609,446

Spec Cred 590,389 459,928

a=Restated to include companies acquired in pooling-of-interests transactions.

### AUTOMATION SCIENCES INC.

Year Ended July 31, 1968

1969 1968

aShr Emd \$ 29 5.29 5.18

Revenue 2,351,312 1,777,201

Spec Cred 1,000 778

Earnings 298,401 b197,219

a-Based on income before special credits; b=Equal to 20 cents a share.

### BRANDON APPLIED SYSTEMS

Six Months Ended August 31

1969 1968

Shr Emd \$ 0.04 1.10

Revenue 2,131,608 \$1,030,213

Spec Cred 1,000 778

Earnings (Loss) 657,339 (19,681)

a=Based on income before tax credits and on common and common equivalent shares; b=Equal to 6 cents a share.

### BUNKER RAMO CORP.

Three Months Ended Sept. 30

1969 1968

Shr Emd \$ 26.54 5.05

Revenue 62,283,937 64,008,937

Spec Cred 1,190,000 1,142,997

aEarnings 4,496,925 3,430,559

Spec Cred 1,132,000 1,132,000

Revenue 191,547,512 180,019,706

Spec Cred 3,346,000 2,382,214

a=Based on income before tax credits; b=Equal to 19 cents a share in the quarter and 55 cents a share in the nine months, compared with 15 cents and 30 cents a share, respectively, in the periods of 1968.

### CODONTRONICS CORP.

Three Months Ended Sept. 30

1969 1968

Shr Emd \$ 19.69 1.05

Revenue 62,283,937 64,008,937

Spec Cred 1,190,000 1,142,997

aEarnings 4,496,925 3,430,559

Spec Cred 1,132,000 1,132,000

Revenue 191,547,512 180,019,706

Spec Cred 3,346,000 2,382,214

a=Based on income before tax credits; b=Equal to 19 cents a share in the quarter and 55 cents a share in the nine months, compared with 15 cents and 30 cents a share, respectively, in the periods of 1968.

### COGNITRONICS CORP.

Three Months Ended Sept. 30

1969 1968

Shr Emd \$ 19.69 1.05

Revenue 971,695 332,672

Spec Cred 166,645 36,833

Loss 21,240,773 21,240,773

Loss 406,020 107,817

a=Includes results of operations of Stamford Tool & Die-Customatic divisions, acquired on Oct. 4, 1968.

### COMPUTER INSTRUMENTS CORP.

12 Weeks Ended Oct. 3

1969 1966

Revenue \$1,434,089 \$1,521,824

Earnings 1,000 73,521

40 Wk Rev 5,349,042 5,605,477

Earnings (Loss) (168,270) 23,241,000

a=Restated to reflect acquisitions on a pooling-of-interests basis; b=Based on common and common equivalent shares; c=Includes results of operations of Commercial Credit Corp.; d=Equal to \$2.90 a share; e=Includes net income of Commercial Credit Corp. amounting to \$74,000 in the quarter and \$23,209,000 in the nine months, compared with \$6,765,000 and \$18,493,000, respectively, in the like 1968 periods.

### CONTROL DATA CORP.

Three Months Ended Sept. 30

1969 1968

Shr Emd \$ 19.69 1.05

Revenue 137,140,000 107,088,000

Spec Cred 12,240,000 10,988,000

b9 Mo Rev 12,248 2,233

Revenue 140,490,000 341,009,000

Spec Cred 142,731,000 32,241,000

a=Restated to reflect acquisitions on a pooling-of-interests basis; b=Based on common and common equivalent shares; c=Includes net income of Commercial Credit Corp. amounting to \$74,000 in the quarter and \$23,209,000 in the nine months, compared with \$6,765,000 and \$18,493,000, respectively, in the like 1968 periods.

### DIGITRONICS CORP.

Six Months Ended Sept. 30

1969 a1968

Shr Emd \$ 19.69 1.05

Revenue 8,244,507 7,960,066

Spec Cred 300,000 123,000

aEarnings 621,731 540,413

b=Restated to reflect acquisitions on a pooling-of-interests basis; c=Includes net income before special credits; d=Equal to 21 cents a share in 1969 and 17 cents a share in 1968.

## Earnings Reports

### DATA PRODUCTS CORP.

Six Months Ended Sept. 27

1969 1968

|                    |            |            |
|--------------------|------------|------------|
| Net Earnings       | \$11       | \$15       |
| Revenue            | 18,449,731 | 16,998,000 |
| Cost of Goods Sold | 12,500,000 | 11,900,000 |
| Operating Expenses | 6,105,648  | 5,992,848  |

<sup>a</sup> Restated by company to reflect the acquisition of Stevens, Inc., in May, 1969, on a pro-rata-of-interests basis. <sup>b</sup> Sales include \$1,000,000 in sales to Earnings. <sup>c</sup> Credit: represents Federal income tax carry forwards. <sup>d</sup> Dividends received by company from its 25% interest in market value, less a 10% carry-forward. <sup>e</sup> Equal to 12 cents a share in 1969 and 13 cents a share in 1968.

### ENRON COMPUTER

Six Months Ended August 31

1969 b 1968

|         |           |  |
|---------|-----------|--|
| Revenue | \$500,000 |  |
| Loss    | 130,131   |  |
|         |           |  |

<sup>a</sup> Includes two months operations of Meyer Higgins Computer Systems, Inc., acquired on July 1; b-Comparable figures not available.

### FABRI-TEK INC.

Three Months Ended Sept. 26,

1969 1968

|              |             |             |
|--------------|-------------|-------------|
| Net Earnings | \$4,721,550 | \$1,025,000 |
| Revenue      | 12,254,000  | 5,976,000   |
| Mo Shr       | .08         |             |
| Net Income   | 9,271,000   | 7,921,613   |
| Earnings     | 255,294     | 130,900     |

<sup>a</sup> Primary earnings.

### INFORMATION DISPLAYS INC.

Nine Months Ended Sept. 30

1969 1968

|              |           |           |
|--------------|-----------|-----------|
| Net Earnings | \$1,18    | \$0.5     |
| Revenue      | 1,717,470 | 1,072,000 |
| Earnings     | 587,000   | 288,000   |
| Mo Shr       | .37       | .38       |
| Net Income   | 1,948,000 | 1,830,000 |
| Earnings     | 103,000   | 109,000   |

<sup>a</sup> Restated to reflect two-for-one stock split in Nov. 1968.

### MITS SYSTEMS CORP.

Year Ended Sept. 30

1969 1968

|              |            |            |
|--------------|------------|------------|
| Net Earnings | \$1.37     | \$1.02     |
| Revenue      | 71,000,000 | 48,000,000 |
| Earnings     | 38,700,000 | 28,000,000 |
| Mo Shr       | .37        | .38        |
| Net Income   | 18,000,000 | 13,000,000 |
| Earnings     | 103,000    | 109,000    |

<sup>a</sup> Restated to reflect two-for-one stock split in Nov. 1968.

### UNIVERSITY COMPUTING CO.

Nine Months Ended Sept. 30

1969 1968

|              |            |           |
|--------------|------------|-----------|
| Net Earnings | \$1.50     | \$1.84    |
| Revenue      | 5,000,000  | 4,200,000 |
| Earnings     | 10,100,000 | 4,820,000 |
| Mo Shr       | .30        |           |
| Net Income   | 10,000,000 | 4,800,000 |

<sup>a</sup> Restated to include acquisitions of a pooling-of-interests basis.

## New Registrations

**INFORMATION PROCESSING SYSTEMS INC.**, 167 System Ave., Englewood Cliffs, N.J. 07632, a company that has been involved in the management of computer software activities and that will be involved in the marketing and distribution of computer software sales representatives, together with educational and technical services, and the use of used computer systems, filed to register 150,000 shares of common stock. Presently, the company has 17.50 million shares, intended to purchase an inventory of computer software products for its subsidiary, American Used Computer Corp., for that subsidiary to market and distribute, and to fund its advertising and sales promotion, technical consulting, and software system design, and software for Internet control of the company and its subsidiary. No underwriter is involved.

**THE BOSTON COMPUTER GROUP, INC.**, 15 School St., Boston, Mass. 02108, a company that has been involved in the management of computer software activities and that will be involved in the marketing and distribution of computer software sales representatives, together with educational and technical services, and the use of used computer systems, filed to register 150,000 shares of common stock. Presently, the company has 17.50 million shares, intended to purchase an inventory of computer software products for its subsidiary, American Used Computer Corp., for that subsidiary to market and distribute, and to fund its advertising and sales promotion, technical consulting, and software system design, and software for Internet control of the company and its subsidiary. No underwriter is involved.

## MARKET RESEARCH ANALYST

Fast-growing computer market research and consulting company has immediate openings on several levels for qualified market analysts to analyze industry trends, prepare reports and work with clients. Exceptional opportunity for persons with experience in market research, security analysis or economic research preferably related to the computer or office equipment field. Salary depends on experience and performance; recent college graduates also considered. Send resume to:

John P. Breyer  
Vice President - Research  
International Data Corporation  
60 Austin Street  
Newtonville, Massachusetts 02160

## COMPUTER PERIPHERAL TALENT GROUP WANTED

We are a large multi-plant company serving electronics and industrial O.E.M. markets with a diversity of sophisticated products. As part of our continuing program of expansion into technically related growth areas, we have established a computer peripheral division.

If you are a small company or talent group with technical expertise in a product or subcomponent area of the computer field, and are interested in joining an organization which can give you solid financial, management and marketing support... contact:

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Corporate Development  
Alloys Unlimited, Inc.  
320 Long Island Expressway South  
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## NEW ENGLAND OPPORTUNITIES IN DATA PROCESSING

### COMPUTER ANALYST \$12,000-\$16,000

Blue Chip Co. wants to hire you to help us develop a system of systems programming is related to scientific and/or real-time data processing. You will be involved in computer installation. Offering realistic starting salaries, performance bonuses, and benefits including profit sharing - one of which is plenty to share.

### AUTOCO/EASYCOO. PROGRAMMER \$9000-\$12,000

Want a chance to learn Disc & tape handling? Want to be involved in a 2000 series Disc in 3-4 mos. Want 1-3 yrs. exp. Opportunity to learn COBOL & start off with a chance for promotion. Now is the time.

### PROGRAMMER \$10,000-\$12,000

Local Rte. 128 firm is looking for 1-3 yrs. minimum exp. in COBOL. You must be an individual MUST show ambition & be able to work well with others. Good pay and benefits. Call now for an early appointment.

### SOFWARE TEST PROGRAMMER \$10,000-\$12,500

This Blue Chip Client company urgently needs an experienced software test engineer, either as a Field Engineer or an Electronic Engineer to help develop software. You will be taught to shoot holes in newly developed software. Good pay and benefits. Call now for an early appointment.

### CONSULTANT PROGRAMMER/ANALYST \$12,000-\$15,000

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## ADP Makes Major Changes In Top Executive Lineup

CLIFTON, N.J. - Automatic Data Processing, Inc. has made a number of executive changes. Henry Taub, who has been serving as president, was elected chairman of the board. He will be the company's chief executive officer.

Paul R. Gauthier, present executive vice-president of administration, was elevated to the post of president and will serve as the chief operating officer of the company.

Joseph Taub, executive vice-president in charge of opera-

### EDPeople

#### Hoover CSC President F. Jones Chairs Board

LOS ANGELES - William R. Hoover has been named president and chief operating officer of Computer Systems Corp. Fletcher Jones, founder and president since CSC began operations 10 years ago, will remain chairman and chief executive officer, the company stated.

Hoover joined CSC in 1964 as a vice-president and general director. In 1968, he was appointed executive vice-president in March 1969.

Before joining CSC, Hoover was chief of the computer applications and data systems section for Caltech's jet propulsion laboratory.

#### New Presidents Named For CIG & Subsidiary

LARCHMONT, N.Y. - Carl H. Freyer has been named president of Computer Investors Group, Inc., succeeding Bruce G. Williams.

Prior to his appointment Freyer was executive vice-president and treasurer of the company. He continues as a director.

Williams has been named president of Mobitel, Inc., a new subsidiary formed by CIG to design and manufacture metal oxide semiconductor circuits. In addition, he continues as a director of Computer Investors Group.

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